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Water resources data for the 1972 water year for Montana consist of records of discharge and water quality of streams, and water quality of lakes and reservoirs. This report contains water quality for 67 gaging stations. Additional water data were collected at various sites, not part of the systematic data collection program, and are published as miscellaneous analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating local, State, and Federal agencies in Montana.

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1972

Water Resources Data for Montana Water Year 1972

Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-72-2

Prepared in cooperation with the State of Montana
and with other agencies

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CALENDAR FOR WATER YEAR 1972

OCTOBER 1971

S	M	T	W	T	F	S
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31						

NOVEMBER 1971

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JANUARY 1972

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MARCH 1972

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APRIL 1972

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MAY 1972

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JULY 1972

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AUGUST 1972

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SEPTEMBER 1972

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1972

Water Resources Data for Montana Water Year 1972

Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT MT-72-2

Prepared in cooperation with the State of Montana
and with other agencies

Prepared in cooperation with

Montana Department of Fish and Game
Montana Department of Health and Environmental Sciences
Corps of Engineers, U.S. Army
Bureau of Reclamation, U.S. Department of the Interior
Bureau of Indian Affairs, U.S. Department of the Interior
Bureau of Land Management, U.S. Department of the Interior
Environmental Protection Agency

Water resources records, 1972, for Montana are in the following reports of the U.S. Geological Survey

1. Water Resources Data for Montana
   Part 1. Surface Water Records

2. Water Resources Data for Montana
   Part 2. Water Quality Records

Copies of this report may be obtained from
District Chief, Water Resources Division
U.S. Geological Survey
421 Federal Building
P.O. Box 1696
Helena, Montana 59601

1973

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WATER RESOURCES DATA FOR MONTANA, 1972

Part 2. Water Quality Records

INTRODUCTION

Water resources data for the 1972 water year for Montana include records of data for the chemical and physical characteristics of surface water. Data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as once daily, weekly, monthly or less frequently. Records for a few pertinent water-quality stations in bordering States are also included. The records were collected by the Water Resources Division of the U.S. Geological Survey under the direction of George M. Pike, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Montana.

The Geological Survey has published records of chemical quality, suspended sediment, and water temperatures since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Beginning with the 1964 water year, water-quality records also have been released by the Geological Survey in annual reports on a State-boundary basis. Distribution of these reports is limited; they are designed primarily for rapid release of data shortly after the end of the water year to meet local needs. These records will be published later in Geological Survey water-supply papers.

COOPERATION

This report was prepared by the U.S. Geological Survey under cooperative agreement with the following organization:

1. Montana Department of Fish and Game.
2. Montana Department of Health and Environmental Sciences.

Agencies furnishing assistance were:

1. Some of the records were obtained at the request of other federal agencies as a part of the program of the U.S. Department of the Interior for the development of the Missouri River basin.
2. Corps of Engineers, U.S. Army.
3. Environmental Protection Agency.

DEFINITION OF TERMS

Terms related to water-quality and hydrologic data, as used in this report are defined as follows:

Acre-foot (ac-ft, AC-FT) is a quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons.

Bed Material is the shifting portion of fragmented alluvial material of which the streambed is composed.

Biochemical oxygen demand (BOD) is the amount of oxygen required by bacteria while stablizing decomposable organic matter under aerobic conditions.

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.9835 acre-feet, or 646,317 gallons, and represents a runoff of approximately 0.0372 inches from 1 square mile.

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition(s), temperature, period of contact, and other factors.

Coliform organisms are a group of bacteria used as an indicator of the sanitary quality of the water. The number of coliform colonies per 100 milliliters is determined by the immediate incubation membrane filter method.

Cubic foot per second (cfs, CFS) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.9 gallons per minute.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Daily mean discharge is the mean discharge for one day.

Mean discharge is the arithmetic mean of individual daily mean discharge during a specific period.

Instantaneous discharge is the discharge at a particular instant of time. This discharge is generally reported instead of daily mean discharge when a time value is shown

Drainage area of a stream at a specified location is that area, measured in horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface stream and bodies of impounded surface water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is obtained.

Hardness of water is a physical-chemical characteristic attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrogen-ion concentration (pH) indicates the degree of acidity or alkalinity of water and is expressed in terms of pH units. The pH value of a solution is the negative logarithm of the concentration of hydrogen ions, in moles per liter.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Milliequivalents per liter is a unit for expressing the concentration of chemical constituents in terms of interreacting values of electrically charged particles, or ions, in solution. One milliequivalent per liter of a positively charged ion will react with one milliequivalent per liter of a negatively charged ion.

Micrograms per liter (µg/l, UG/L) is a unit expressing the concentration of chemical constituents in solution as weight (micrograms) of solute per unit volume (liter) of one milligram per liter.

Milligrams per liter (mg/l, MG/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the weight of solute per unit volume of water. Milligrams or micrograms per liter may be converted to milliequivalents (one thousandth of a gramequivalent weight of a constituent) per liter by multiplying by the factors in table 1, page 4. Concentration of suspended sediment also is expressed in mg/l, and is based on the weight of sediment per liter of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, page 4.

Partial-record station is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in a native water (the river water at the time and point of sampling) (Guy, 1969).

Particle-size classification, used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	0.0002⁴ - 0.00⁴	Sedimentation.
Silt	.00⁴ - .062	Sedimentation.
Sand	.062 - 2.0	Sedimentation or sieve.
Gravel	2.0 - 6⁴.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy, 1969).

Primary productivity is the rate at which radiant energy is stored by photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants) in the form of organic substances which can be used as food materials.

Sediment is solid material that originates mostly from disintegrated rocks and is transformed by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight, or by volume, that is discharged in a given time. It is computed by multiplying discharge by the mean concentration (mg/l) times 0.0027.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/l).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour period.

Table 1. Factors for conversion of chemical constituents in milligrams or micrograms per liter to milliequivalents per liter.

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})*.....	0.11119	Hydroxide (OH^{-1}).....	0.05880
Ammonia as NH_4^{+1}.....	.05544	Iodide (I^{-1}).....	.00788
Barium (Ba^{+2})*.....	.01456	Iron (Fe^{+3})*.....	.05372
Beryllium (Be^{+3})*.....	.33288	Lead (Pb^{+2})*.....	.00965
Bicarbonate (HCO_3^{-1})....	.01639	Lithium (Li^{+1})*.....	.14411
Bromide (Br^{-1}).....	.01251	Magnesium (Mg^{+2}).....	.08226
Cadmium (Cd^{+2})*.....	.01779	Manganese (Mn^{+2})*.....	.03640
Calcium (Ca^{+2}).....	.04990	Nickel(Ni^{+2})*.....	.03406
Carbonate (CO_3^{-2}).....	.03333	Nitrate (NO_3^{-1}).....	.01613
Chloride (Cl^{-1}).....	.02821	Nitrite (NO_2^{-1}).....	.02174
Chromium (Cr^{+6})*.....	.11539	Phosphate (PO_4^{-3}).....	.03159
Cobalt (CO^{+2})*.....	.03394	Potassium (K^{+1}).....	.02557
Copper (Cu^{+2})*.....	.03148	Sodium (Na^{+1}).....	.04350
Cyanide (CN^{-1}).....	.03844	Strontium (Sr^{+2})*.....	.02283
Fluoride (F^{-1}).....	.05264	Sulfate (SO_4^{-2}).....	.02082
Hydrogen (H^{+1}).....	.99209	Zinc (Zn^{+2})*.....	.03060

* Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in milligrams per liter to parts per million*
(All values calculated to three significant figures)

Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	227-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

*Based on water density of 1.000 g/ml and a specific gravity of sediment of 2.65.

Sodium adsorption ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. This ratio should be known especially for water used for irrigating farmland.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of water to conduct an electrical current and is expressed in micromhos per centimeter at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the dissolved-solids content in the water. Commonly, the amount of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream or from well to well, and it may even vary in the same source with changes in the composition of the water.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff." Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the location of the thermograph or a digital mechanism that automatically records water temperature on paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the water year.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multipling the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

International Hydrological Decade (IHD) River Stations provide a general index of runoff and meterials in the water balance (discharge of water, and dissolved and transported solids) of the world. In the United States, IHD Stations provide indices of runoff and the general distribution of water in the principal river basins of the conterminous United States and Alaska.

Irrigation network stations are water-quality stations located at or near certain streamflow gaging stations west of the main stem of the Mississippi River. Data collected at these stations are used to evaluate the chemical quality of surface waters used for irrigation and the changes resulting from the drainage of irrigated lands. Prior to water year 1966, the data for these stations were published in the annual water-supply paper series, "Quality of Surface Water for Irrigation, Western States."

Pesticide program is a network of a regularly sampled water-quality station where additional monthly samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

Radiochemical program is a network of regularly sampled water-quality stations where additional samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

DOWNSTREAM ORDER AND STATION NUMBERS

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of indentification, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence the numbers are not consecutive. The complete 8-digit number for each station, such as 06090500, includes the part number "06" and a 6-digit station number. This number appears just to the left of the station name. In this report, the records are listed in downstream order by parts. All records for a drainage basin encompassing more than one State could be arranged in downstream order by assembling pages from the various State reports by station number to include all records in the basin.

COLLECTION AND EXAMINATION OF DATA

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads. Discharge records for streams in Montana have been released in the report, "Water Resources Data for Montana, 1972, Part 1. Surface Water Records."

The data in this report includes a description of the sampling station and tabulations of the samples analyzed. The description of the sampling station gives the location, drainage area, periods of record for the various water-quality data, extremes of the pertinent data, and general remarks, in a format similar to that used for streamflow gaging stations.

Data on the quality of surface water were collected from designated sampling sites (map on page 11) at predetermined intervals such as once daily, weekly, monthly or less frequently.

Water-quality information is presented for chemical quality, microbiological, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, sodium adsorption ratio, specific conductance, and pH. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations except for stations where a continuous temperature recorder furnishes information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began to use the metric system; data for chemical constituents and concentrations of suspended sediment are now reported in milligrams per liter (mg/l) and water temperatures are given in degrees Celsius (centigrade, °C). In waters with a density of 1.000 g/ml (grams per milliliter), parts per millions and milligrams per liter can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per liter (see table 2 on page 4). To convert temperature in degrees Celsius to degrees Fahrenheit, see table 3 below.

Table 3.--Degrees Celsius (°C)*to degrees Fahrenheit (°F)
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
2.5	36	12.5	54	22.5	72	32.5	90	42.5	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
7.5	45	17.5	63	27.5	81	37.5	99	47.5	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

*C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements and some pollutants, in micrograms per liter instead of milligrams per liter. (See "Definitions of Terms," p. 1).

Solutes

The methods of collecting and analyzing water samples for determining the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman (1970). One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge depending on the source of material and the turbulence and the mixing of the stream. Some must be sampled at several verticals across the channel to determine accurately the solute load.

The daily chemical quality data in this report generally represent equal-volume composites for 2- to 30-day periods; the composite periods are selected on the basis of specific conductance of the daily samples and fluctuation of water discharge.

Temperature

Water temperatures are measured at most of the water-quality stations. For daily stations, the water temperatures are taken at about the same time each day when sample is collected. Large streams have small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where continuously recording thermographs are present, the records consist of maximum and minimum temperatures for each day and the monthly averages.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the sub-divided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the sub-divided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

WATER-SUPPLY PAPERS

Table 4 below shows the annual series of water-supply paper that give information on quality of surface water in Montana. Data for Hudson Bay and Missouri River basins are given in parts 5-6 and for upper Columbia River basin are given in Part 12.

Table 4.--Water-supply paper numbers and parts, water years, 1947-69

Year	Parts 5-6	Part 12	Year	Parts 5-6	Part 12
1947	1102	----	1958	1572	1574
1948	1132	----	1959	1643	1645
1949	1162	----	1960	1743	1745
1950	1187	----	1961	1883	1885
1951	1198	1200	1962	1943	1945
1952	1251	1253	1963	1949	1951
1953	1291	1293	1964	1956	1959
1954	1351	1353	1965	1963	1966
1955	1401	1403	1966	1993	1996
1956	1451	1453	1967	2013	2016
1957	1521	1523	1968	2095	2100
			1969	A2145	A2150

A In press.

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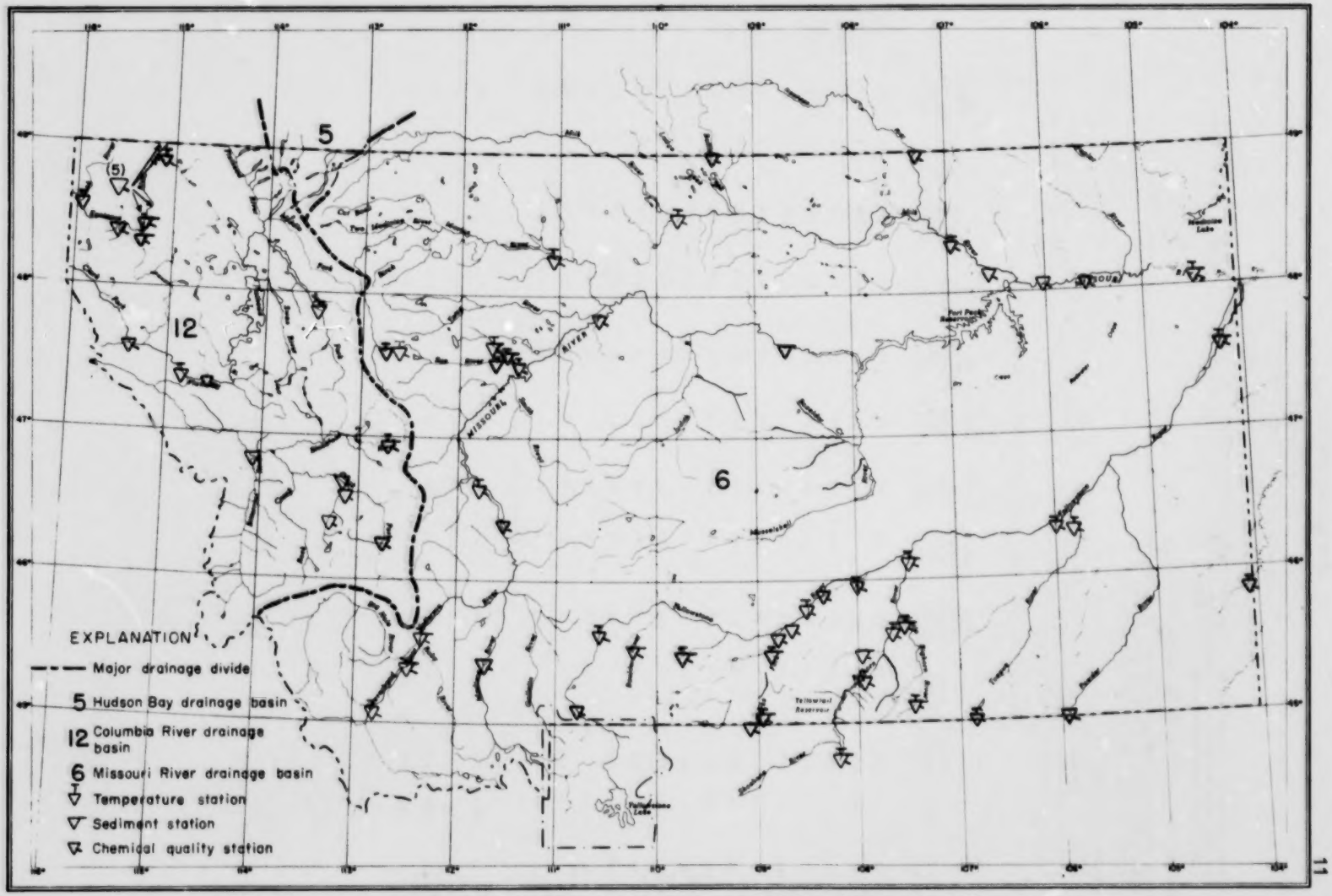

FIGURE 1-LOCATION OF WATER-QUALITY STATION, 1972 WATER YEAR

PART 6. MISSOURI RIVER BASIN

MISSOURI RIVER MAIN STEM

06016000 BEAVERHEAD RIVER AT BARRETTS, MONT.

LOCATION (revised).--Lat 45°06'59", long 112°44'59", in SW¼SE¼ sec.19, T.8 S., R.9 W., Beaverhead County, at private road bridge 800 ft upstream from Barretts, 1 mile downstream from gaging station, 2.5 miles downstream from Grasshopper Creek, and 8 miles southwest of Dillon.

DRAINAGE AREA.--2,737 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: November 1949 to September 1951, July 1965 to September 1972.
Water temperatures: July 1965 to September 1972.
Sediment records: May 1949 to September 1951.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 358 mg/l Jan. 1-31; minimum, 260 mg/l June 1-30.
Hardness: Maximum, 250 mg/l Jan. 1-31; minimum, 180 mg/l June 1-30.
Specific conductance: Maximum daily, 579 micromhos Feb. 7; minimum daily, 380 micromhos June 5.
Water temperatures: Maximum, 20.0°C Aug. 16, 21; minimum, freezing point on several days during December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	701	--	19	0	56	20	21	4.1	246	0	62
NOV.												
01-30	--	558	--	18	0	56	20	23	4.0	240	0	70
DEC.												
01-30	--	506	--	18	0	55	23	21	3.6	243	0	81
JAN.												
01-31	--	375	--	20	20	64	22	22	3.9	224	16	88
FEB.												
01-29	--	385	--	18	10	61	22	22	4.1	241	0	86
MAR.												
01-31	--	569	--	18	20	58	19	23	4.6	230	0	76
APR.												
01-30	--	834	--	14	40	56	20	21	3.8	235	0	73
MAY												
01-31	--	911	--	15	20	48	18	21	3.7	220	0	57
JUNE												
01-30	--	981	--	17	30	47	16	18	3.6	200	0	52
JULY												
01-31	--	809	--	18	30	51	19	20	4.2	228	0	62
AUG.												
01-31	--	746	--	17	10	53	20	22	3.8	238	0	60
SEP.												
01-30	--	464	--	18	20	55	20	20	4.4	234	0	59
WTD. AVG.	--	--	--	17	18	54	19	21	3.9	230	1	66
TIME WTD. AVG.	--	655	--	18	17	55	20	21	4.0	232	1	69
TONS PER DAY	--	--	--	30	0	95	34	37	7.0	406	1	117
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
14...	1605	330	9.5	18	20	58	20	24	3.9	236	0	80
JAN.												
06...	1425	386	3.5	18	0	63	22	22	4.2	252	0	69
MAR.												
31...	1150	810	4.5	16	20	58	20	21	4.1	244	0	69
JUNE												
29...	1330	700	15.5	16	40	52	18	21	3.9	240	0	61

06016000 BEAVERHEAD RIVER AT BARRETTS, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 466 mg/l Jan. 14-31, 1967; minimum, 260 mg/l June 1-30, 1972.
Hardness: Maximum, 316 mg/l Jan. 1-31, 1967; minimum, 170 mg/l June 2-30, 1967.
Specific conductance: Maximum daily, 733 micromhos Jan. 24, 1967; minimum daily, 353 micromhos June 8, 1967.
Water temperatures: Maximum, 21.0°C Aug. 29, 1970; minimum, freezing point on many days during winter periods most years.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. The computations of tons per day of dissolved solids refer to flow past the gaging station. Temperature recorder at gaging station 1 mile upstream from sampling site. Thermograph records furnished by Montana Fish and Game Department. Some regulation by Lima Reservoir and nearly complete regulation by Clark Canyon Reservoir. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT. 01-31	12	.4	.17	—	316	.43	598	220	20	.6	517	8.1
NOV. 01-30	12	.6	.00	—	322	.44	485	220	25	.7	515	8.1
DEC. 01-30	11	.5	.16	—	333	.45	455	230	33	.8	520	8.2
JAN. 01-31	11	.4	.19	—	358	.49	362	250	40	.6	550	8.4
FEB. 01-29	11	.5	.08	.000	343	.47	357	240	45	.6	541	8.2
MAR. 01-31	11	.5	.01	.000	323	.44	496	220	34	.7	519	8.1
APR. 01-30	8.8	.4	.00	.000	313	.43	705	220	29	.6	501	8.0
MAY 01-31	9.0	.4	.00	.000	280	.38	689	190	14	.7	479	7.9
JUNE 01-30	8.0	.4	.00	.020	260	.35	689	180	19	.6	431	7.7
JULY 01-31	9.3	.4	.00	.010	296	.40	647	210	19	.6	482	8.1
AUG. 01-31	11	.4	.00	.010	304	.41	612	210	19	.7	503	7.7
SEP. 01-30	11	.5	.00	.000	303	.41	380	220	28	.6	515	7.8
WTD. AVG.	10	.4	.04	—	306	.42	—	213	25	.6	498	8.0
TIME WTD. AVG.	10	.4	.05	—	313	.43	—	217	27	.6	506	8.0
TONS PER DAY	18	.8	.07	—	540	—	—	—	—	—	—	—
ANALYSES OF ADDITIONAL SAMPLES												
OCT. 14...	11	.4	.06	—	332	.45	296	230	34	.7	513	8.3
JAN. 06...	11	.6	.25	—	335	.46	349	250	41	.6	557	8.3
MAR. 31...	11	.5	.09	.000	320	.44	700	230	27	.6	506	8.2
JUNE 29...	9.1	.4	.44	.020	302	.41	571	200	7	.6	479	8.4

06016000 BEAVERHEAD RIVER AT BARRETTS, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	518	510	506	553	571	554	513	505	429	486	494	489
2	520	508	528	---	564	559	497	505	411	462	494	---
3	511	510	525	557	563	560	499	504	406	457	487	489
4	504	507	528	557	563	559	503	502	395	458	487	489
5	503	507	533	543	563	544	499	503	380	468	486	514
6	504	507	526	543	563	538	496	501	391	469	486	514
7	512	508	538	543	579	---	495	497	391	461	486	514
8	502	508	554	547	572	554	497	497	396	468	486	489
9	---	510	552	547	563	544	---	496	401	470	490	489
10	496	507	544	542	561	531	499	495	395	470	494	514
11	504	507	542	550	562	511	499	502	393	474	494	514
12	511	498	541	547	568	528	499	503	406	465	494	514
13	516	502	543	551	562	549	502	503	414	473	500	517
14	520	500	549	552	562	528	503	497	419	470	502	517
15	499	502	545	553	562	521	503	490	437	466	500	500
16	495	498	552	552	557	538	504	486	439	468	495	517
17	487	507	552	552	553	521	502	483	443	472	494	517
18	506	502	549	557	562	522	503	474	442	471	494	517
19	511	504	544	557	563	513	505	470	449	506	502	517
20	511	502	544	553	547	493	503	472	455	483	502	---
21	473	507	543	550	550	496	503	472	444	472	503	517
22	502	493	543	551	557	495	495	430	455	475	502	517
23	495	509	549	552	563	493	496	439	---	474	510	517
24	511	518	543	551	571	493	---	444	450	481	486	514
25	512	518	549	560	574	493	499	447	452	485	486	505
26	517	518	549	557	553	---	499	448	455	484	486	505
27	502	517	545	562	573	513	---	494	457	490	469	514
28	520	512	554	562	547	508	497	493	457	481	486	514
29	513	517	546	561	554	499	493	446	474	484	506	495
30	520	515	549	561	---	508	494	437	480	497	478	495
31	519	---	---	562	---	508	---	433	---	487	484	---
MONTH	507	508	542	553	562	523	500	477	428	474	492	508
YEAR	506											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
14...	1605	330	.080	60	0
NOV.					
02...	1820	675	.070	--	--
DEC.					
09...	1215	514	.060	--	--
JAN.					
06...	1425	386	.010	60	25
FEB.					
03...	1345	374	.070	--	--
MAR.					
02...	1605	418	.030	--	--
31...	1150	810	.030	50	10
APR.					
28...	0730	815	.020	--	--
MAY					
25...	1335	970	.040	--	--
JUNE					
29...	1330	700	.050	130	20
JULY					
26...	1335	929	.040	--	--
AUG.					
30...	1445	531	.040	--	--

06016000 BEAVERHEAD RIVER AT BARRETTS, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	9.0	4.5	4.0	2.0	1.0	3.5	2.0	2.0	0.0	4.5	2.0
2	11.0	9.0	5.0	3.5	2.0	0.5	3.0	0.5	3.0	0.5	5.5	3.0
3	11.0	8.5	4.5	3.0	2.0	1.5	1.5	0.0	1.5	0.0	5.0	3.0
4	11.5	9.0	4.5	3.0	2.0	1.0	1.0	0.0	3.0	0.0	5.5	3.0
5	11.0	9.0	4.5	2.0	3.5	1.5	3.0	1.0	4.5	2.0	6.0	3.5
6	11.5	9.0	4.0	2.0	2.0	0.5	3.5	1.0	5.0	3.0	5.0	3.0
7	11.0	9.0	4.0	1.5	1.0	0.0	3.5	1.0	4.5	3.0	5.5	2.0
8	10.5	8.5	4.0	2.0	0.5	0.0	3.0	1.5	4.5	3.0	6.0	3.0
9	11.5	8.5	4.5	2.0	1.5	0.0	3.5	1.5	5.0	2.0	7.0	3.5
10	11.0	8.5	4.5	3.0	1.5	0.5	2.0	1.5	3.5	0.5	6.5	3.5
11	11.0	9.0	4.5	3.0	2.0	0.5	4.0	1.0	3.5	0.5	6.0	3.5
12	11.0	8.5	5.0	3.5	2.0	0.5	3.5	1.5	4.0	2.0	6.0	3.5
13	11.5	9.0	5.0	4.0	2.0	1.0	3.0	1.0	4.0	3.0	6.5	4.0
14	10.5	9.0	4.5	4.0	2.0	0.5	3.0	1.0	4.0	2.0	7.0	3.5
15	9.5	7.0	4.5	3.5	2.0	1.0	2.0	0.5	5.0	1.5	8.5	4.0
16	9.0	6.5	4.5	3.5	2.0	1.0	3.0	0.5	5.5	3.5	8.0	3.5
17	10.0	8.0	4.0	3.0	2.0	0.5	3.5	1.0	5.0	3.0	7.0	3.5
18	9.0	8.0	4.0	3.0	2.0	0.5	4.0	2.0	5.5	3.0	6.0	4.0
19	9.0	7.0	3.5	2.0	1.5	1.0	4.5	3.5	5.5	3.0	6.5	4.0
20	8.0	6.5	4.0	2.0	2.0	1.0	4.5	3.5	5.5	3.5	6.5	3.5
21	10.0	7.0	4.0	2.0	3.0	1.0	3.5	3.0	5.5	2.0	8.5	4.0
22	9.5	6.5	3.5	2.0	3.5	2.0	3.5	3.0	5.0	3.5	9.0	4.5
23	9.0	6.5	3.5	2.0	3.5	1.0	3.5	2.0	5.0	3.0	6.0	3.5
24	8.5	7.0	3.0	2.0	3.0	1.0	3.0	1.5	4.5	3.0	6.0	3.0
25	9.0	6.5	3.0	1.5	4.0	1.0	0.0	0.0	5.0	2.0	6.0	3.5
26	9.0	7.0	3.0	1.5	1.5	0.0	1.0	0.0	5.0	2.0	5.0	3.0
27	7.0	5.0	3.5	1.5	1.5	0.0	1.5	0.0	5.0	3.5	5.5	3.5
28	5.5	4.5	3.0	1.5	1.5	0.0	3.0	0.0	5.5	4.0	5.5	3.5
29	6.5	4.5	3.0	1.5	3.0	0.5	3.5	0.5	5.0	3.0	5.5	3.5
30	6.0	4.5	3.0	1.5	3.0	1.0	2.0	0.0	---	---	5.5	3.5
31	5.5	4.0	---	---	2.0	0.5	3.0	0.5	---	---	7.0	3.5
MONTH	11.5	4.0	5.0	1.5	4.0	0.0	4.5	0.0	5.5	0.0	9.0	2.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.0	9.5	5.5	16.0	13.5	18.0	14.0	18.0	16.0	18.5	15.0
2	7.0	4.0	8.5	5.5	16.5	14.0	17.0	13.5	18.5	16.0	19.0	15.0
3	7.0	3.5	10.0	6.0	15.5	14.0	17.0	13.5	18.5	16.0	19.0	15.0
4	7.0	4.5	8.5	6.5	15.5	13.0	19.0	13.5	18.5	16.0	19.0	15.0
5	6.5	4.5	9.5	6.5	16.5	13.5	18.0	14.5	18.5	16.0	17.0	15.0
6	8.0	5.0	9.5	6.5	15.5	14.5	18.5	15.0	19.0	16.5	16.5	15.0
7	8.0	5.0	8.5	7.0	15.5	14.5	19.0	14.5	19.0	16.5	18.0	14.0
8	8.0	5.0	8.5	7.0	15.5	14.5	18.5	14.5	19.5	16.5	18.0	14.0
9	8.5	5.0	10.0	6.5	15.0	14.5	16.0	14.5	18.5	16.5	17.0	14.5
10	7.0	5.0	10.0	7.0	16.0	14.0	18.0	14.5	19.0	17.0	15.5	14.5
11	8.0	5.0	9.5	7.0	16.0	14.0	17.0	14.5	19.0	16.5	16.0	14.0
12	8.0	5.5	10.0	8.0	15.5	13.0	19.0	15.0	18.5	16.5	16.0	13.5
13	6.5	5.0	11.5	8.0	15.5	13.5	18.5	15.0	18.5	17.0	17.0	13.5
14	8.0	4.5	11.0	8.5	15.5	13.0	18.0	15.5	19.0	17.0	16.5	13.0
15	8.0	5.0	10.5	8.5	15.5	13.5	18.5	15.0	19.5	17.0	16.0	13.0
16	6.5	5.5	11.0	8.5	15.5	13.5	17.5	15.0	20.0	17.0	16.5	13.0
17	8.0	5.0	10.0	8.5	14.0	13.5	18.0	15.5	19.5	16.5	16.0	13.0
18	7.0	4.5	10.5	8.5	14.5	13.5	18.0	15.5	19.5	16.5	16.0	13.0
19	8.5	4.5	9.5	8.5	15.0	12.0	16.5	15.5	18.5	17.0	15.0	13.5
20	8.5	5.0	10.5	9.0	15.5	13.0	15.0	14.5	19.5	16.5	14.5	12.0
21	8.0	5.0	11.0	9.0	16.0	13.5	16.0	14.5	20.0	16.5	15.0	12.0
22	9.0	5.5	10.5	9.5	15.5	13.0	16.5	14.5	19.0	16.5	15.5	12.0
23	9.5	5.0	12.0	9.5	14.5	13.5	17.0	15.0	17.0	16.5	14.0	11.5
24	9.0	6.0	11.5	9.5	15.0	13.0	17.0	15.0	19.5	16.0	13.5	10.5
25	8.0	6.0	11.5	9.5	15.5	13.0	18.0	15.5	19.0	15.5	13.5	10.0
26	9.5	5.5	13.0	9.5	15.0	13.0	16.5	15.5	19.0	15.5	13.0	9.5
27	10.0	5.5	13.5	10.0	16.5	13.5	17.0	15.5	19.0	15.5	12.0	10.5
28	10.5	6.0	14.0	10.0	18.0	13.5	17.0	15.5	19.5	15.5	11.5	10.0
29	8.0	6.0	15.0	11.0	18.5	14.0	18.0	15.5	18.0	16.0	13.0	9.5
30	8.5	5.5	15.5	11.5	18.0	14.0	17.0	15.5	19.0	15.5	13.5	9.5
31	---	---	15.5	13.0	---	---	17.0	16.0	18.5	16.0	---	---
MONTH	10.5	3.5	15.5	5.5	18.5	12.0	19.0	13.5	20.0	15.5	19.0	9.5
YEAR	20.0	0.0										

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.

LOCATION.--Lat 45°23'01", long 112°27'07", in SW¼NW¼SE¼ sec.22, T.5 S., R.7 W., Madison County, at gaging station at bridge on State Highway 41, 11.5 miles upstream from Ruby River, 12.7 miles southwest of Twin Bridges, and 14.5 miles northeast of Dillon.

DRAINAGE AREA.--3,619 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1949 to September 1951, July 1962 to September 1972.
Water temperatures: July 1962 to September 1972.
Sediment records: July 1962 to September 1972.
Prior to October 1968, published as "at Blaine".

EXTREMES.--1971-72:
Dissolved solids: Maximum, 458 mg/l June 1-30; minimum, 332 mg/l Apr. 1-30.
Hardness: Maximum, 310 mg/l June 1-30; minimum, 220 mg/l Jan. 2-17, 23-31.
Specific conductance: Maximum daily, 751 micromhos June 23; minimum daily, 557 micromhos Apr. 8, 9.
Water temperatures: Maximum, 22.0°C July 16, Aug. 8; minimum, freezing point on several days during December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	879	--	22	0	66	23	26	4.9	272	0	81
NOV.												
01-30	--	801	--	21	0	68	23	21	4.7	268	0	90
DEC.												
01-31	--	718	--	21	0	59	25	25	4.4	246	0	96
JAN.												
02-17	--	623	--	23	10	52	23	26	---	213	0	97
23-31	--	588	--	22	10	50	24	26	4.9	200	0	100
FEB.												
01-29	--	684	--	22	10	70	23	24	4.8	257	0	96
MAR.												
01-31	--	794	--	21	10	62	22	23	4.5	255	0	82
APR.												
01-30	--	934	--	18	10	55	22	25	4.3	231	0	81
MAY												
01-31	--	413	--	20	10	65	24	30	5.2	259	0	93
JUNE												
01-30	--	326	--	27	10	77	29	33	7.3	299	0	120
JULY												
01-31	--	359	--	24	20	73	27	29	6.3	289	0	100
AUG.												
01-13	--	253	--	26	10	71	28	34	6.4	290	0	110
17-31	--	425	--	27	10	72	30	34	7.2	298	0	110
SEP.												
01-30	--	470	--	25	10	61	27	29	6.5	265	0	100
WTD. AVG.	--	--	--	22	7	64	24	26	4.9	258	0	92
TIME WTD. AVG.	--	406	--	22	8	65	25	27	5.2	263	0	95
TONS PER DAY	--	--	--	36	0	104	39	43	8.0	422	0	151
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
14...	1015	404	9.0	23	20	73	25	29	5.1	294	0	91
JAN.												
07...	1145	673	.5	22	0	72	24	25	5.0	273	0	87
APR.												
06...	1455	1830	9.5	18	10	46	22	22	4.9	255	0	86
JUNE												
30...	1105	471	15.5	22	40	--	27	31	6.4	306	0	110

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.--Continued

EXTREMES, 1971-72.--Continued
Sediment concentrations: Maximum daily, 169 mg/l Feb. 6; minimum daily, 6 mg/l Sept. 18.
Sediment discharge: Maximum daily, 411 tons Mar. 17; minimum daily, 5.8 tons May 19.

Period of record:
Dissolved solids: Maximum, 579 mg/l May 19-31, 1963; minimum, 332 mg/l Apr. 1-30, 1972.
Hardness: Maximum, 362 mg/l Sept. 1-30, 1966; minimum, 213 mg/l Mar. 19, 20, 1963.
Specific conductance: Maximum daily, 896 micromhos June 23, 1963; minimum daily, 433 micromhos May 23, 1969.
Water temperatures: Maximum, 24.0°C on several days in 1966-1968, and 1970; minimum, freezing point on several days during winter periods most years.
Sediment concentrations: Maximum daily, 670 mg/l June 8, 1964; minimum daily, 5 mg/l Sept. 22, 23, 1964.
Sediment discharge: Maximum daily, 1,200 tons June 8, 1964; minimum daily, 1.6 tons July 28, 1968.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Recorder stopped Aug. 23 to Sept. 6. Thermograph records furnished by Montana Fish and Game Department. Flow partly regulated by Lima and Clark Canyon Reservoirs. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	14	.5	.25	--	372	.51	883	260	36	.7	598	8.2
NOV.												
01-30	15	.6	.00	--	375	.51	811	260	45	.6	590	8.2
DEC.												
01-31	14	.5	.33	--	367	.50	711	250	48	.7	567	8.3
JAN.												
02-17	13	.5	.31	.010	341	.46	574	220	50	.8	538	8.1
23-31	13	.4	.27	.010	340	.46	540	220	60	.8	529	8.1
FEB.												
01-29	13	.5	.29	.000	381	.52	621	270	59	.6	588	8.2
MAR.												
01-31	13	.6	.21	.000	355	.48	761	250	36	.6	559	8.1
APR.												
01-30	13	.3	.01	.000	332	.45	837	230	38	.7	533	8.1
MAY												
01-31	15	.3	.11	.000	380	.52	424	260	49	.8	611	8.2
JUNE												
01-30	17	.5	.12	.010	458	.62	403	310	66	.8	718	7.6
JULY												
01-31	16	.6	.13	.010	419	.57	406	290	56	.7	676	7.9
AUG.												
01-13	19	.5	.12	.010	438	.60	299	290	55	.9	703	8.0
17-31	19	.6	.08	.010	447	.61	513	300	59	.9	707	8.0
SEP.												
01-30	17	.6	.18	.000	397	.54	504	260	46	.8	618	8.0
WTD. AVG.	14	.5	.17	--	375	.51	--	257	46	.7	592	8.1
TIME WTD. AVG.	15	.5	.17	--	385	.52	--	263	49	.7	609	8.1
TONS PER DAY	24	.8	.28	--	614	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
14...	15	.4	.33	--	415	.56	677	290	44	.7	648	7.9
JAN.												
07...	13	.8	.52	--	385	.52	700	280	55	.7	613	8.0
APR.												
06...	13	.5	.10	.010	358	.49	996	260	46	.6	556	8.2
JUNE												
30...	16	.5	.50	.010	415	.56	528	230	0	.9	688	8.1

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	620	593	588	---	609	600	570	574	721	686	688	644
2	620	---	605	622	596	614	561	579	719	622	697	644
3	614	590	590	636	---	608	564	---	666	659	644	583
4	598	602	590	622	623	604	568	578	---	654	658	618
5	595	593	588	632	606	613	568	580	678	639	668	644
6	596	603	590	612	621	591	564	583	703	665	680	618
7	602	605	592	615	620	600	561	585	723	656	680	618
8	602	592	580	624	623	592	557	585	729	665	680	644
9	586	587	603	619	621	591	557	585	704	667	727	644
10	585	568	603	619	621	581	558	586	665	654	727	---
11	585	569	603	619	621	569	560	594	690	662	703	644
12	590	581	609	625	622	569	561	613	690	659	---	644
13	595	602	603	619	---	596	570	597	690	676	675	644
14	634	---	---	625	622	593	564	---	701	665	---	665
15	595	---	602	612	622	579	---	616	688	678	---	618
16	596	592	591	613	618	585	564	640	693	690	---	618
17	590	592	609	613	618	568	560	689	705	690	662	594
18	596	587	609	---	614	569	559	688	717	718	672	618
19	616	598	609	---	614	---	568	657	719	716	703	665
20	608	592	609	---	622	577	568	660	---	695	703	---
21	630	592	603	---	627	574	564	671	728	722	703	644
22	619	592	603	---	611	589	564	674	728	692	720	618
23	619	582	602	613	618	588	558	675	751	660	732	679
24	602	592	---	612	614	559	559	702	---	681	732	679
25	---	592	600	587	622	571	559	707	726	697	695	665
26	605	590	602	571	631	564	570	663	726	698	699	679
27	597	---	617	638	---	567	570	688	707	700	692	679
28	620	593	617	640	587	560	570	663	688	693	683	679
29	621	592	617	613	585	585	570	661	667	686	---	644
30	609	587	609	612	---	588	569	683	680	686	712	618
31	596	---	603	622	---	580	---	718	---	681	703	---
MONTH	605	591	602	616	616	584	564	638	704	678	694	641
YEAR	627											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
14...	1015	604	.080	80	10
NOV.					
02...	1610	876	.080	--	--
DEC.					
09...	1730	731	.050	--	--
JAN.					
07...	1145	673	.020	70	17
FEB.					
02...	1200	522	.080	--	--
29...	1345	691	.010	--	--
APR.					
06...	1655	1030	.020	60	10
26...	1500	785	.020	--	--
MAY					
24...	1325	276	.030	--	--
JUNE					
30...	1105	471	.030	90	30
JULY					
25...	1700	378	.030	--	--
AUG.					
29...	1240	468	.030	--	--

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.5	7.0	3.5	2.0	1.5	0.5	---	---	0.5	0.0	4.5	1.5
2	10.0	6.5	3.5	1.5	0.5	0.5	---	---	0.5	0.5	4.5	3.0
3	10.5	8.0	4.5	3.0	1.5	0.5	---	---	0.5	0.0	5.0	3.5
4	11.5	9.5	5.0	3.0	1.5	0.5	---	---	0.5	0.0	5.0	2.0
5	12.0	10.0	4.0	1.5	2.0	0.5	0.5	0.0	0.5	0.0	5.0	4.0
6	12.0	10.0	3.0	1.0	2.0	1.0	0.0	0.0	0.5	0.0	5.5	4.0
7	12.0	10.5	3.0	1.5	1.0	0.5	1.0	0.0	2.0	0.5	4.5	2.0
8	11.5	10.0	4.0	2.0	0.5	0.5	1.5	0.5	3.0	2.0	5.0	3.0
9	11.5	9.5	4.0	2.0	0.5	0.5	1.5	0.5	3.5	2.0	7.0	4.5
10	12.0	10.0	4.5	3.5	0.5	0.5	1.5	0.0	3.0	1.0	8.5	6.0
11	10.5	10.0	5.5	4.0	0.5	0.5	1.0	0.0	2.0	0.5	6.5	6.0
12	10.5	9.0	5.5	5.0	0.5	0.5	1.5	0.5	3.5	1.0	6.5	5.0
13	11.0	9.0	6.0	5.0	1.0	0.5	0.5	0.0	3.5	2.0	8.0	6.0
14	10.5	9.0	5.0	4.5	1.0	0.5	0.5	0.0	2.0	1.0	8.0	5.5
15	9.0	5.5	5.0	4.0	1.0	0.5	0.0	0.0	3.0	1.5	8.5	5.5
16	6.0	5.0	4.0	3.5	0.5	0.5	0.5	0.0	4.0	2.0	9.0	6.5
17	8.5	5.5	3.5	3.0	2.0	0.5	2.0	0.5	3.5	3.0	8.5	6.5
18	8.5	7.0	3.5	2.0	1.5	1.0	3.0	1.5	5.5	3.0	8.0	6.5
19	8.0	6.5	4.0	3.0	1.5	1.0	4.0	3.0	5.5	4.0	8.5	6.0
20	8.0	6.5	4.5	3.5	1.5	1.0	4.0	3.0	5.5	4.0	8.0	6.0
21	9.0	7.0	4.0	3.0	2.0	1.0	4.0	3.5	4.5	3.5	8.5	5.5
22	9.0	7.0	4.0	3.0	3.0	1.5	3.5	2.0	5.0	4.0	9.5	6.5
23	8.5	6.5	3.0	1.0	3.5	2.0	3.0	2.0	4.0	3.0	8.5	6.0
24	8.0	8.0	3.5	2.0	2.0	1.5	1.5	0.5	4.0	3.0	6.5	4.5
25	8.0	6.0	4.0	3.0	3.0	1.5	0.5	0.5	4.0	1.5	6.5	5.0
26	8.5	6.5	2.0	1.5	1.5	0.5	0.5	0.5	3.5	2.0	5.0	3.0
27	7.0	1.5	3.5	2.0	0.5	0.5	0.5	0.5	8.0	3.5	5.0	3.0
28	1.5	0.5	3.0	1.5	0.5	0.0	0.5	0.0	6.5	4.0	5.5	3.5
29	1.5	0.5	2.0	1.5	---	---	0.5	0.0	6.0	4.5	6.0	3.5
30	3.5	1.5	3.0	1.5	---	---	0.5	0.0	---	---	5.5	4.0
31	4.5	3.5	---	---	---	---	0.5	---	---	---	6.5	4.0
MONTH	12.0	0.5	6.0	1.0	3.5	0.0	4.0	0.0	8.0	0.0	9.5	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	6.0	10.0	6.0	20.0	14.5	19.0	14.5	18.5	14.5	---	---
2	9.0	6.0	9.5	8.0	20.0	15.0	16.5	12.0	18.5	15.0	---	---
3	7.0	4.0	11.5	7.0	18.0	15.0	17.0	12.0	19.5	14.5	---	---
4	8.0	5.0	11.0	9.0	19.0	13.0	18.5	13.5	20.0	15.0	---	---
5	7.0	6.0	11.5	8.5	20.0	14.5	19.0	14.5	20.5	15.5	---	---
6	10.0	6.0	10.5	8.5	18.0	15.0	18.5	15.5	20.5	15.5	---	---
7	8.5	6.0	9.5	8.0	18.0	14.5	20.0	14.5	21.0	16.0	15.0	10.5
8	8.0	6.0	8.5	6.5	18.0	14.5	20.0	15.5	22.0	17.0	15.5	11.0
9	9.0	5.5	11.0	6.0	17.0	14.0	18.0	15.0	20.0	16.5	15.5	13.0
10	8.5	6.0	11.0	8.5	18.5	13.5	16.5	12.0	20.0	15.5	13.5	11.5
11	8.5	5.5	11.5	8.5	18.0	14.0	16.5	14.0	20.5	16.0	15.0	10.5
12	8.5	6.5	11.0	9.0	17.0	12.0	20.0	13.5	19.5	16.0	15.0	11.5
13	6.5	5.5	15.0	9.5	18.5	12.0	21.5	16.0	18.5	16.0	14.5	11.5
14	9.0	5.0	15.5	11.0	19.0	10.5	21.5	16.5	18.5	15.5	15.0	11.5
15	9.5	6.5	15.0	11.5	19.5	15.0	21.5	15.5	19.5	15.5	14.5	11.5
16	8.0	6.0	16.0	11.5	18.0	15.0	22.0	16.0	19.5	15.5	15.0	11.5
17	8.5	5.0	14.5	12.0	18.5	13.5	21.5	15.5	19.0	15.5	14.0	12.0
18	8.0	5.0	14.5	10.5	16.0	14.0	21.0	16.0	19.0	15.0	14.0	11.5
19	8.0	5.0	13.5	10.0	15.5	10.5	16.5	12.0	17.0	15.5	13.5	10.5
20	9.5	6.0	13.0	9.0	17.0	12.0	12.0	10.0	17.0	14.5	10.5	9.0
21	9.0	7.0	14.0	10.5	18.5	13.5	14.5	10.5	19.5	14.5	12.0	8.5
22	9.0	6.5	13.0	9.5	19.0	13.5	17.0	12.0	18.0	14.5	13.5	10.5
23	10.0	6.0	14.0	10.5	18.0	14.0	18.5	14.0	---	---	13.0	10.5
24	9.5	8.0	13.5	11.0	15.5	12.0	19.5	15.5	---	---	10.5	8.5
25	9.0	8.0	14.5	10.5	15.0	12.0	20.0	15.0	---	---	10.0	7.0
26	10.0	6.0	16.0	11.0	15.5	12.0	19.0	16.0	---	---	9.5	6.5
27	11.0	8.0	17.0	11.5	16.5	11.5	18.5	14.5	---	---	10.0	9.0
28	12.0	9.0	18.5	13.0	19.0	14.0	20.5	15.0	---	---	9.0	8.0
29	11.0	6.0	19.5	13.5	19.5	15.0	20.5	16.0	---	---	10.0	6.5
30	8.5	5.0	20.5	14.0	19.5	15.0	20.0	17.0	---	---	11.0	8.5
31	---	---	19.0	15.0	---	---	18.5	16.0	---	---	---	---
MONTH	12.0	4.0	20.5	6.0	20.0	10.5	22.0	10.0	---	---	15.5	6.5
YEAR	22.0	0.0										

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	948	34	87	879	12	28	752	40	81
2	966	30	78	875	11	26	688	28	52
3	956	27	70	884	11	26	720	50	97
4	956	24	62	888	13	31	716	29	56
5	948	25	64	843	55	125	716	21	42
6	956	22	57	803	82	178	724	41	80
7	961	18	47	803	76	165	688	26	48
8	970	15	39	821	72	160	639	27	47
9	977	19	50	830	65	146	684	45	83
10	983	14	37	821	70	155	700	45	85
11	977	15	40	789	68	145	780	59	112
12	965	9	23	789	69	147	728	77	151
13	980	9	24	794	73	156	724	54	106
14	629	20	34	785	78	165	724	54	106
15	618	51	85	780	78	164	724	43	123
16	772	57	119	780	75	156	704	77	146
17	879	49	116	744	72	149	732	74	146
18	969	49	128	760	75	154	732	90	178
19	978	36	95	764	78	161	736	98	195
20	951	46	118	776	79	166	736	85	165
21	712	65	125	780	71	150	740	76	152
22	555	50	75	780	68	143	748	70	141
23	580	40	63	780	58	122	764	146	301
24	857	37	86	780	68	143	764	86	177
25	915	26	64	789	63	134	768	58	120
26	915	19	47	776	48	101	720	53	103
27	911	22	54	780	42	88	704	55	105
28	879	18	43	780	41	86	696	52	98
29	866	20	47	776	34	71	692	42	78
30	875	17	40	785	29	61	732	37	73
31	884	13	31	--	--	--	708	30	57
TOTAL	27288	--	2048	24034	--	3704	22303	--	3503

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	740	29	58	555	109	163	646	103	180
2	744	44	88	552	100	149	660	140	249
3	684	44	81	559	104	157	668	116	209
4	625	52	88	569	112	172	650	104	183
5	615	76	126	590	135	215	650	142	249
6	672	85	154	597	169	272	688	155	288
7	676	140	256	590	147	234	680	95	174
8	643	112	194	590	125	199	680	89	163
9	632	101	172	590	93	148	688	91	169
10	601	82	133	587	70	111	716	123	238
11	546	115	170	587	90	143	756	118	241
12	546	74	109	590	75	119	740	113	232
13	552	92	137	590	74	118	740	155	310
14	569	117	180	587	63	100	680	146	268
15	608	93	153	590	60	96	622	73	123
16	618	106	177	597	68	110	760	157	322
17	629	112	190	601	80	130	911	167	411
18	629	100	170	608	63	103	942	160	407
19	632	89	152	622	80	134	951	157	403
20	632	81	138	632	103	176	951	147	377
21	650	76	133	632	70	119	821	124	275
22	650	74	130	632	84	143	622	83	139
23	646	75	131	622	88	148	756	132	269
24	632	85	145	618	71	118	983	126	334
25	597	40	64	615	53	88	1010	69	188
26	618	72	120	615	91	151	1000	55	149
27	559	61	92	622	95	160	965	57	149
28	552	85	127	646	122	213	947	64	164
29	580	54	85	680	136	250	956	65	168
30	555	41	61	--	--	--	960	77	200
31	555	108	162	--	--	--	942	67	170
TOTAL	19187	--	4176	17465	--	4439	24761	--	7401

06018500 BEAVERHEAD RIVER NEAR TWIN BRIDGES, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	978	51	135	764	42	87	165	43	19
2	996	48	129	764	40	83	207	66	37
3	996	51	137	704	46	87	233	75	47
4	1010	53	145	676	54	99	250	81	55
5	1010	61	166	660	46	82	258	77	54
6	1040	95	267	650	47	82	228	51	31
7	1030	102	284	660	43	77	215	64	37
8	1030	83	231	650	56	98	228	89	55
9	1020	81	223	608	50	82	275	138	102
10	1010	84	229	586	39	62	363	167	164
11	1010	84	229	546	40	59	393	113	120
12	1010	56	153	513	51	71	355	100	96
13	1020	63	174	495	38	51	315	71	60
14	1020	50	138	368	36	36	305	70	58
15	1010	31	85	345	51	48	280	67	51
16	989	30	80	290	37	29	275	52	39
17	985	42	112	272	22	16	265	50	36
18	972	37	97	235	14	8.9	265	70	50
19	970	37	97	213	10	5.8	288	79	61
20	923	37	92	235	14	8.9	290	88	69
21	866	41	96	262	68	48	348	109	102
22	853	40	92	342	78	72	381	104	107
23	856	36	83	350	46	43	363	87	85
24	844	43	98	292	30	24	390	90	95
25	839	47	106	280	37	28	405	111	121
26	825	38	85	270	32	23	450	107	130
27	780	37	78	243	22	14	483	125	163
28	728	44	86	235	27	17	525	116	164
29	724	44	86	213	19	11	489	77	102
30	756	44	90	170	16	7.3	444	58	70
31	--	--	--	158	31	13	--	--	--
TOTAL	28100	--	4103	13049	--	1472.9	9731	--	2380

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	387	68	71	280	35	26	459	29	25
2	387	62	65	280	36	27	507	19	26
3	408	58	64	290	32	25	507	12	16
4	450	56	68	283	31	24	486	11	14
5	453	61	75	263	30	21	486	22	29
6	405	53	58	280	28	21	471	26	33
7	450	58	70	275	29	22	435	13	15
8	408	50	55	250	25	17	432	8	9.3
9	370	45	45	195	26	14	423	9	10
10	350	42	40	215	33	19	420	10	11
11	340	36	33	209	19	11	450	17	21
12	328	33	29	203	14	7.7	474	24	31
13	290	29	23	215	17	9.9	492	20	27
14	275	28	21	298	21	17	480	15	19
15	253	25	17	396	25	27	483	10	13
16	250	22	15	486	29	38	471	10	13
17	250	20	14	483	33	43	465	8	10
18	243	22	14	456	30	37	459	6	7.4
19	240	23	15	375	25	25	399	10	11
20	345	36	32	353	21	20	387	13	14
21	423	82	94	373	26	26	381	10	10
22	459	70	87	360	22	21	381	7	7.2
23	510	78	107	396	21	22	393	7	7.4
24	438	45	53	465	24	30	405	11	12
25	378	41	42	465	17	21	444	36	43
26	365	49	48	453	26	32	546	37	55
27	360	47	46	459	17	21	546	10	15
28	333	50	45	447	20	24	555	11	16
29	323	35	31	447	21	25	576	10	16
30	325	35	31	423	12	14	555	11	16
31	320	35	30	420	12	14	--	--	--
TOTAL	11116	--	1458	10793	--	701.6	13968	--	552.3

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 221795
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 35938.8

06026500 JEFFERSON RIVER NEAR TWIN BRIDGES, MONT.

LOCATION (revised).--Lat 45°36'50", long 112°19'45", in SE¼SW¼ sec.34, T.2 S., R.6 W., Madison County, at county bridge 6.5 miles downstream from gaging station, 10.5 miles downstream from confluence of Beaverhead and Big Hole Rivers, and 10 miles north of Twin Bridges.

DRAINAGE AREA.--7,632 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: September 1957 to September 1959, August 1960 to September 1962, July 1965 to September 1972.
Water temperatures: March 1958 to September 1959, August 1960 to September 1962, July 1965 to September 1972.
Sediment records: October 1957 to September 1959, August 1960 to September 1962, July 1965 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 349 mg/l Jan. 25-31; minimum, 104 mg/l June 1-21.
Hardness: Maximum, 230 mg/l Dec. 1-31, Jan. 25-31, Aug. 10-31, Sept. 1-30; 66 mg/l May 15-31, June 1-21.
Specific conductance: Maximum daily, 605 micromhos Jan. 25, 26; minimum daily, 138 micromhos June 4, 5.
Water temperatures: Maximum observed, 25.0°C Aug. 10; minimum, freezing point on many days during December to February.
Sediment concentrations: Maximum daily, 387 mg/l June 2; minimum daily, 3 mg/l Nov. 19.

CHEMICAL ANLAYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	1770	--	21	0	57	19	21	4.5	232	0	69
NOV.												
01-30	--	1720	--	20	0	56	19	21	4.2	224	0	73
DEC.												
01-31	--	1510	--	21	0	59	20	22	3.9	237	0	82
JAN.												
01-24	--	1410	--	21	10	47	18	20	4.1	188	0	80
25-31	--	1270	--	23	10	61	20	25	4.9	228	0	85
FEB.												
01-29	--	1310	--	20	10	55	18	19	4.2	213	0	76
MAR.												
01-16	--	1570	--	20	20	52	17	17	4.3	197	0	70
17-31	--	2650	--	20	40	41	14	16	4.5	168	0	59
APR.												
01-30	--	2440	--	19	20	43	14	16	3.4	183	0	54
MAY												
01-14	--	3000	--	17	40	30	8.8	11	2.7	129	0	32
15-31	--	6320	--	16	60	19	4.4	5.9	1.9	81	0	18
JUNE												
01-21	--	9980	--	14	80	19	4.5	5.8	2.4	75	0	20
22-30	--	4460	--	17	60	29	9.3	10	2.8	120	0	33
JULY												
01-31	--	1840	--	18	10	38	12	13	3.3	155	0	48
AUG.												
01-09	--	1000	--	19	20	46	15	16	3.8	180	0	61
10-31	--	861	--	21	20	58	20	22	5.1	226	0	74
SEP.												
01-30	--	1050	--	21	20	58	21	21	5.6	229	0	87
WTD. AVG.	--	--	--	18	38	37	12	13	3.3	150	0	47
TIME WTD. AVG.	--	2430	--	19	20	47	16	17	3.9	188	0	63
TONS PER DAY	--	--	--	117	0	244	77	87	22	985	0	310
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
04...	1545	1790	10.5	21	20	59	20	21	4.2	237	0	73
JAN.												
04...	1300	1250	.0	23	40	63	22	22	6.0	244	0	85
MAR.												
09...	1805	1760	6.0	20	30	48	16	18	3.9	198	0	77
MAY												
22...	1330	7960	9.0	16	250	15	4.6	6.3	2.2	60	0	18
JUNE												
23...	1155	4830	14.5	16	260	24	7.1	8.8	2.3	100	0	23

06026500 JEFFERSON RIVER NEAR TWIN BRIDGES, MONT.--Continued

EXTREMES, 1971-72.--Continued
Sediment discharge: Maximum daily, 11,600 tons June 3; minimum daily, 13 tons Nov. 19, Aug. 19.

Period of record:
Dissolved solids: Maximum, 455 mg/l Sept. 1-30, 1969; minimum, 93 mg/l June 1-14, 1959.
Hardness: Maximum, 311 mg/l Aug. 24-31, 1969; minimum, 49 mg/l May 11-31, 1958.
Specific conductance: Maximum daily, 749 micromhos Sept. 23, 1969; minimum daily, 102 micromhos May 23, 1958.
Water temperatures (1958-59, 1960-62, 1965-72): Maximum observed, 25.5°C July 16, 1959; minimum, freezing point on many days during winter periods most years.
Sediment concentrations: Maximum daily, 1,300 mg/l Oct. 24, 1961; minimum daily, 2 mg/l July 19, 1966, Aug. 13, 1967.
Sediment discharge: Maximum daily, 11,600 tons June 3, 1972; minimum daily, 2 tons July 19, 1966.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Dissolved solids, 355 mg/l Jan. 4; hardness, 250 mg/l Jan. 4; minimum observed during water year: Dissolved solids, 97 mg/l May 22; hardness, 56 mg/l May 22, 47 mg/l June 23. Flow affected by ice Jan. 27 to Feb. 15. Prior to January 1970, sampling site was 4 miles upstream. Some regulation by upstream reservoirs. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	11	.4	.06	--	317	.43	1520	220	30	.6	514	8.2
NOV.												
01-30	11	.5	.00	--	315	.43	1440	220	34	.6	497	8.3
DEC.												
01-31	11	.4	.24	--	337	.46	1370	230	35	.6	505	8.3
JAN.												
01-24	10	.4	.17	.010	294	.40	1120	190	37	.6	456	8.3
25-31	15	.4	.53	.000	349	.47	1200	230	48	.7	538	8.4
FEB.												
01-29	9.9	.4	.22	.010	308	.42	1090	210	37	.6	485	8.1
MAR.												
01-16	9.6	.4	.10	.030	288	.39	1220	200	38	.5	454	8.0
17-31	7.8	.3	.08	.000	246	.33	1760	160	22	.6	385	7.8
APR.												
01-30	7.1	.4	.04	.000	247	.34	1630	160	15	.5	381	8.0
MAY												
01-14	4.8	.3	.01	.010	170	.23	1380	110	5	.5	260	7.9
15-31	2.4	.2	.00	.000	108	.15	1840	66	0	.3	158	8.0
JUNE												
01-21	1.0	.4	.00	.010	104	.14	2800	66	4	.3	159	6.7
22-30	3.0	.5	.01	.010	164	.22	1980	110	12	.4	269	6.9
JULY												
01-31	5.5	.4	.00	.010	214	.29	1060	140	17	.5	345	7.8
AUG.												
01-09	7.8	.4	.00	.000	258	.35	697	180	29	.5	412	8.0
10-31	11	.4	.08	.000	323	.44	751	230	42	.6	525	7.9
SEP.												
01-30	12	.5	.03	.000	339	.46	961	230	43	.6	543	8.1
WTD. AVG.	6.0	.4	.05	--	211	.29	--	141	18	.5	330	7.7
TIME WTD. AVG.	8.5	.4	.08	--	268	.36	--	181	27	.5	421	8.0
TONS PER DAY	40	2.5	.33	--	1380	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
04...	8.5	.3	.16	--	324	.44	1570	230	35	.6	509	8.3
JAN.												
04...	12	.4	.35	--	355	.48	1200	250	48	.6	550	8.0
MAR.												
09...	8.8	.3	.16	.010	290	.39	1380	190	23	.6	443	8.1
MAY												
22...	2.2	.1	.57	.050	97	.13	2080	56	7	.4	142	8.0
JUNE												
23...	2.6	.5	.13	.090	118	.16	1540	47	0	.4	214	7.7

06026500 JEFFERSON RIVER NEAR TWIN BRIDGES, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
04...	1545	1790	.050	40	10
NOV.					
01...	1720	1940	.20	--	--
DEC.					
06...	1225	1690	.040	--	--
JAN.					
04...	1300	1250	.020	50	80
31...	1630	1200	.050	--	--
FEB.					
28...	1430	1520	.020	--	--
MAR.					
09...	1805	1760	.040	0	20
MAY					
02...	1630	2550	.040	--	--
22...	1330	7960	.050	80	20
JUNE					
23...	1155	4830	.11	60	0
JULY					
25...	1430	1500	.020	--	--
AUG.					
22...	1300	828	.030	--	--

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	504	522	507	498	495	457	422	---	151	307	413	500
2	509	508	524	498	522	464	415	---	165	307	412	513
3	507	508	546	498	534	465	412	---	143	314	411	541
4	504	492	535	533	533	467	402	---	138	325	412	517
5	500	499	523	460	496	457	400	---	138	344	410	541
6	498	499	507	501	480	457	401	---	145	349	410	526
7	500	515	532	474	480	471	379	---	142	349	443	541
8	500	501	507	481	472	471	354	---	140	345	451	508
9	498	493	575	487	473	443	364	---	142	329	457	531
10	500	493	524	477	492	449	376	---	152	321	470	531
11	498	487	545	479	489	450	375	---	169	323	484	541
12	500	486	496	489	497	450	394	---	164	330	492	541
13	502	485	523	509	488	449	392	---	160	325	505	531
14	509	472	492	523	476	442	404	---	168	322	505	531
15	509	462	525	513	480	436	408	---	181	318	505	508
16	499	473	515	497	469	425	408	---	178	317	530	500
17	496	465	489	487	469	423	401	---	170	329	505	541
18	500	484	504	487	471	408	417	---	171	333	505	541
19	512	500	497	482	476	397	412	---	169	340	518	541
20	500	492	496	485	479	393	417	---	180	364	518	541
21	493	472	495	489	481	358	409	---	193	373	518	517
22	486	471	495	479	481	358	404	---	221	378	518	517
23	485	472	488	487	480	352	391	---	226	372	518	541
24	488	496	495	493	488	353	392	---	242	371	540	517
25	492	501	495	605	495	357	361	---	250	369	547	526
26	496	491	495	605	484	376	361	---	285	380	543	526
27	492	492	506	600	476	379	352	---	291	378	543	541
28	534	486	553	539	473	402	341	---	303	376	540	541
29	544	489	555	540	459	406	349	---	310	376	543	541
30	559	491	525	524	---	412	306	---	310	375	543	517
31	516	---	519	501	---	424	---	191	---	388	543	---
MONTH	504	490	516	507	486	421	387	---	193	346	492	528
YEAR	442											

06026500 JEFFERSON RIVER NEAR TWIN BRIDGES, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	2.5	0.0	0.0	0.0	3.0	9.5	9.5	18.0	17.0	19.0	16.5
2	9.0	2.0	0.0	0.0	0.0	4.0	9.0	8.5	17.5	15.0	18.0	18.0
3	11.0	5.0	0.0	0.0	0.0	3.5	8.5	8.5	15.0	15.0	18.0	18.0
4	10.5	4.5	0.0	0.0	0.0	4.0	9.5	10.0	17.5	17.0	20.0	18.0
5	14.0	3.0	1.5	0.0	0.0	4.5	9.0	9.5	15.0	17.0	23.0	15.0
6	15.0	2.0	0.5	1.0	0.5	6.0	9.0	9.0	16.0	18.0	19.5	14.0
7	14.5	2.0	0.0	1.0	0.5	6.0	7.5	8.5	16.0	18.0	23.0	15.0
8	14.5	4.0	0.0	0.5	1.0	6.0	8.0	8.0	16.0	18.0	23.0	17.5
9	14.0	5.0	0.0	1.0	0.5	6.0	7.5	8.5	16.0	18.0	23.0	16.0
10	14.0	6.0	0.0	0.0	0.0	8.0	8.0	11.0	16.5	16.0	25.0	12.5
11	14.0	6.0	0.0	0.5	0.0	8.5	9.5	11.0	15.5	16.0	23.0	14.0
12	11.0	8.0	0.0	0.0	3.0	8.0	7.0	9.5	14.5	16.0	22.0	15.5
13	12.0	7.0	0.0	0.5	1.0	8.0	6.0	15.0	16.0	18.0	23.5	15.0
14	9.0	6.0	0.0	1.0	1.0	8.5	6.0	16.5	16.0	20.5	22.0	15.0
15	6.0	5.0	0.0	1.0	1.0	9.5	7.0	15.5	15.0	18.0	22.0	15.0
16	4.5	4.0	0.0	0.0	0.5	11.0	7.0	15.0	17.0	19.0	21.0	16.0
17	8.0	3.0	0.0	1.0	1.0	11.0	6.5	14.0	15.0	19.5	20.5	16.0
18	8.0	2.0	1.0	1.0	1.5	9.5	7.0	14.5	14.5	19.0	21.0	15.5
19	7.0	4.0	0.5	1.5	3.0	8.5	8.0	14.0	13.0	13.0	21.0	11.5
20	8.0	6.5	0.0	4.0	4.5	9.0	9.0	14.0	13.0	11.0	16.0	10.5
21	7.5	6.0	1.5	4.0	5.0	9.0	9.0	10.0	13.5	14.0	20.0	13.5
22	9.5	5.0	3.0	3.0	5.0	9.0	10.0	9.0	15.0	16.0	20.0	14.0
23	7.0	3.5	3.0	2.0	3.0	7.0	11.5	12.5	14.5	17.5	17.0	11.0
24	7.0	3.0	3.0	1.0	3.0	5.5	11.0	12.0	15.0	19.0	17.0	10.5
25	7.0	3.0	1.5	0.0	2.0	4.0	11.0	12.5	14.0	19.5	18.0	8.5
26	7.0	3.0	0.0	0.0	3.0	4.0	11.0	13.0	14.0	19.5	17.0	10.0
27	3.0	3.0	0.0	0.0	4.5	3.5	11.5	13.0	13.0	19.5	17.0	10.0
28	1.0	3.0	0.0	1.0	4.5	4.0	13.0	13.0	15.0	23.0	19.0	8.0
29	0.0	2.0	0.0	1.0	5.0	5.0	8.0	18.0	17.0	22.0	20.0	10.0
30	1.5	2.0	0.0	0.5	---	6.0	8.0	18.0	16.0	20.0	20.0	12.0
31	2.0	---	0.0	0.0	---	8.0	---	19.0	---	19.0	15.0	---
MONTH	8.5	4.0	0.5	1.0	2.0	6.5	9.0	12.5	15.5	17.5	20.0	13.5
YEAR	9.0											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
JUNE											
06...	1010	14.0	12300	214	7110	10	19	70	76	87	100

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1830	10	49	1860	9	45	1540	7	29
2	1860	12	60	1830	7	35	1440	16	62
3	1830	12	59	1860	8	40	1430	29	112
4	1810	12	59	1940	11	58	1420	23	88
5	1770	10	48	1900	9	46	1400	20	76
6	1780	8	38	1770	10	48	1460	14	55
7	1790	10	48	1710	8	37	1420	23	88
8	1760	8	38	1720	8	37	1290	50	174
9	1770	8	38	1720	17	79	1420	31	119
10	1790	10	48	1720	37	172	1530	23	95
11	1780	15	72	1720	14	65	1560	36	152
12	1770	7	33	1720	9	42	1580	89	380
13	1740	7	33	1760	10	48	1590	61	262
14	1680	6	27	1780	9	43	1670	21	95
15	1510	4	16	1790	8	39	1660	16	72
16	1620	7	31	1760	7	33	1600	25	108
17	1680	10	45	1700	8	37	1670	38	171
18	1780	8	38	1650	6	27	1710	45	208
19	1870	8	40	1650	3	13	1610	46	200
20	1900	12	62	1650	6	27	1540	38	158
21	1870	10	50	1700	6	28	1520	23	94
22	1670	8	36	1700	5	23	1520	22	90
23	1580	4	17	1650	6	27	1560	20	84
24	1710	6	28	1610	5	22	1510	16	65
25	1880	8	41	1590	8	34	1490	31	125
26	1910	9	46	1610	7	30	1490	29	117
27	1910	16	83	1610	8	35	1390	23	86
28	1830	18	89	1600	6	26	1420	56	215
29	1700	14	64	1610	8	35	1430	22	85
30	1560	28	118	1620	7	31	1450	52	204
31	1810	24	117	--	--	--	1520	21	86
TOTAL	54750	--	1571	51510	--	1262	46860	--	3955

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1500	19	77	1220	12	40	1420	37	142
2	1580	24	102	1150	64	199	1400	41	155
3	1520	18	74	1200	94	305	1430	33	127
4	1420	6	23	1200	73	237	1400	43	163
5	1400	5	19	1300	93	326	1420	54	207
6	1460	32	126	1380	110	410	1470	66	262
7	1510	90	367	1380	35	130	1450	49	192
8	1500	61	247	1380	26	97	1460	58	229
9	1410	63	240	1360	41	151	1520	51	209
10	1400	125	473	1300	42	147	1580	73	311
11	1390	124	465	1270	50	171	1730	65	304
12	1330	89	320	1270	77	264	1790	68	329
13	1350	61	222	1270	55	189	1770	60	287
14	1390	74	278	1270	53	182	1780	58	279
15	1340	102	369	1260	98	333	1710	50	231
16	1410	78	297	1280	190	657	1720	44	204
17	1380	134	499	1280	258	892	2030	95	521
18	1350	113	412	1280	276	954	2260	100	610
19	1320	82	292	1320	107	381	2460	129	857
20	1340	88	318	1350	78	284	2490	115	773
21	1400	40	151	1360	59	217	2570	142	985
22	1390	30	113	1330	38	136	2740	130	962
23	1350	24	87	1320	50	178	3040	112	919
24	1310	23	81	1310	39	138	3310	105	938
25	1430	12	46	1290	38	132	3330	120	1080
26	1330	10	36	1280	49	169	3100	50	419
27	1300	8	28	1340	57	206	2770	43	322
28	1100	10	30	1450	51	200	2590	58	406
29	1200	15	49	1510	54	220	2470	57	380
30	1300	7	25	--	--	--	2360	49	312
31	1220	49	161	--	--	--	2290	46	284
TOTAL	42630	--	6027	37910	--	7945	64860	--	13399

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2290	56	346	2850	65	500	9500	312	8000
2	2300	62	385	2460	42	279	10900	387	11400
3	2430	45	295	2430	30	197	12300	349	11600
4	2470	74	494	2460	35	232	12600	306	10400
5	2490	62	417	2770	39	292	12500	247	8340
6	2570	75	520	3120	44	371	12100	231	7550
7	2790	79	595	3330	49	441	11900	172	5530
8	2910	79	621	3490	54	509	11500	195	6090
9	2770	64	479	3690	65	648	12000	203	6580
10	2600	45	316	3750	65	658	12200	170	5600
11	2520	43	293	3330	43	387	12700	287	9840
12	2470	40	267	2850	29	223	12500	181	6110
13	2520	34	231	2630	22	156	10900	189	5560
14	2470	32	213	2840	29	222	9020	135	3290
15	2330	60	377	3420	61	563	7820	80	1690
16	2290	36	223	4210	149	1690	7280	105	2060
17	2390	33	213	5080	260	3570	6860	85	1570
18	2330	27	170	5900	351	5590	6830	75	1380
19	2260	25	153	6280	195	3310	6550	75	1330
20	2140	22	127	6630	172	3080	6050	81	1320
21	2100	25	142	7100	145	2780	5520	71	1060
22	2110	37	211	7890	171	3640	5020	54	732
23	2170	32	187	7730	155	3240	4680	54	682
24	2100	29	164	7350	171	3390	4730	55	702
25	2230	37	223	6730	121	2200	4730	52	664
26	2360	40	255	6160	74	1230	4780	50	645
27	2360	34	217	5810	69	1080	4660	47	591
28	2330	28	176	5740	91	1410	4370	40	472
29	2770	80	598	6160	89	1480	3880	41	430
30	3300	59	526	7100	120	2300	3320	40	359
31	--	--	--	8190	184	4070	--	--	--
TOTAL	73170	--	9434	149470	--	49738	249700	--	121537

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	3110	39	327	908	18	44	980	11	29
2	2820	25	190	1000	20	54	1000	17	46
3	2750	33	245	1120	24	73	1000	15	41
4	2640	27	192	1160	18	56	1010	9	25
5	2560	33	228	1110	12	36	1010	12	33
6	2500	35	236	1020	10	28	1010	18	49
7	2480	41	275	1060	21	60	990	11	29
8	2480	28	187	944	16	41	962	8	21
9	2450	20	132	674	10	18	917	9	22
10	2250	18	109	625	11	19	908	11	27
11	2110	17	97	572	9	14	990	11	29
12	2040	17	94	554	16	24	1050	18	51
13	1820	15	74	524	21	30	1060	14	40
14	1640	15	66	625	30	51	1060	14	40
15	1570	13	55	754	31	63	1050	18	51
16	1460	13	51	874	26	61	1040	17	48
17	1350	12	44	935	24	61	962	10	26
18	1280	10	35	926	19	48	962	8	21
19	1230	8	27	926	5	13	962	15	39
20	1320	8	29	874	18	42	971	9	24
21	1520	15	62	826	26	58	980	8	21
22	1680	24	109	842	27	61	971	9	24
23	1700	23	106	953	26	67	953	16	41
24	1600	21	91	1000	22	59	962	10	26
25	1570	16	68	1040	21	59	1050	11	31
26	1450	15	59	1040	19	53	1240	15	50
27	1320	23	71	1010	21	57	1330	17	61
28	1230	14	46	1010	22	60	1350	16	58
29	1140	8	25	1030	19	53	1340	12	43
30	1030	13	36	1020	25	69	1340	16	58
31	786	9	19	980	17	45	--	--	--
TOTAL	56886	--	3385	27936	--	1477	31410	--	1104

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 887072
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 220834

06041000 MADISON RIVER BELOW ENNIS LAKE, NEAR McALLISTER, MONT.

LOCATION.--Lat 45°29'25", long 111°38'00", in NW¼ sec.17, T.4 S., R.1 E., Madison County, at footbridge on right bank 700 ft upstream from gaging station, 1.4 miles downstream from Ennis Lake, and 5.6 miles northeast of McAllister.

DRAINAGE AREA.--2,186 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1972.

REMARKS.--Flow regulated by Hebgen and Ennis Lakes. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
JULY											
18...	1315	1940	23	5.9	14	14	8.0	1.3	174	.24	911
AUG.											
22...	1345	1590	23	5.8	20	15	11	1.6	206	.28	884
SEP.											
19...	1330	1900	20	5.4	21	15	13	2.0	164	.22	841

DATE	HARD-NESS (CA,MG) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
JULY										
18...	82	.7	.00	--	.33	.33	.020	.040	.080	.9
AUG.										
22...	81	1.0	--	--	--	--	--	--	--	1.8
SEP.										
19...	72	1.1	--	--	--	--	--	--	--	1.[illegible]

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
18...	1315	19.0	24.0	25[illegible]	7.8	8.2	85	600	8
AUG.									
22...	1345	19.0	25.5	250	8.4	8.4	80	44	0
SEP.									
19...	1330	12.5	10.5	240	8.8	7.7	75	4800	4

06054500 MISSOURI RIVER AT TOSTON, MONT.

LOCATION.--Lat 46°08'46", long 111°25'18", in SE¼NW¼ sec.36, T.5 N., R.2 E., Broadwater County, at old highway bridge 2.4 miles downstream from gaging station, 2.4 miles upstream from Crow Creek, 10.2 miles downstream from Sixteenmile Creek, and at mile 2,289.6.

DRAINAGE AREA.--14,669 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July to September 1972.

REMARKS.--Some regulation by six reservoirs on tributaries and Clark Canyon Reservoir. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
JULY											
18...	0930	3330	14	10	13	31	6.0	.8	216	.29	1940
AUG.											
22...	0930	3770	40	13	21	44	9.7	1.1	282	.38	2870
SEP.											
19...	1000	4100	37	12	20	37	11	1.2	226	.31	2500

DATE	HARD-NESS (CA,MG) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
JULY										
18...	76	.6	.00	--	.42	.42	.010	.030	.080	1.2
AUG.										
22...	150	.7	--	--	--	--	--	--	--	1.7
SEP.										
19...	140	.7	--	--	--	--	--	--	--	1.4

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
18...	0930	19.0	17.0	325	8.8	8.0	124	30	8
AUG.									
22...	0930	19.0	19.0	355	9.6	8.0	125	20	7
SEP.									
19...	1000	13.5	11.0	360	9.2	7.7	116	39	4

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MONT.

LOCATION.--Lat 46°38'58", long 111°43'39", in NW¼SE¼SE¼ sec.4, T.10 N., R.1 W., Lewis and Clark County, just downstream from generator outlet at Canyon Ferry Dam, 15 miles east of Helena, and at mile 2,242.8.

DRAINAGE AREA.--15,904 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1972.
Water temperatures: October 1967 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 247 mg/l May 1-31; minimum, 176 mg/l Aug. 1-20.
Hardness: Maximum, 160 mg/l Apr. 1-28; minimum, 110 mg/l Aug. 1-20.
Specific conductance: Maximum daily, 399 micromhos Mar. 27; minimum daily, 282 micromhos Aug. 1, 14, 19, 20.
Water temperatures: Maximum, 17.5°C Sept. 2; minimum, 1.5°C Jan. 3.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	5160	--	20	0	35	9.9	16	3.2	153	0	31
NOV.												
01-30	--	5410	--	20	10	34	10	17	3.4	154	0	34
DEC.												
01-31	--	5470	--	20	10	38	11	16	3.2	163	0	35
JAN.												
01-31	--	5590	--	22	10	40	12	19	3.5	173	0	51
FEB.												
01-29	--	5760	--	23	10	41	12	19	3.4	174	0	38
MAR.												
01-31	--	5440	--	23	0	41	12	19	3.7	179	0	43
APR.												
01-28	--	8500	--	23	10	44	12	20	3.5	178	0	40
MAY												
01-31	--	9900	--	22	10	42	12	20	3.4	174	0	50
JUNE												
01-30	--	9250	--	22	10	38	11	20	3.4	162	0	38
JULY												
01-31	--	4210	--	21	20	34	9.5	17	3.0	140	0	31
AUG.												
01-20	--	9920	--	19	20	31	8.4	14	3.0	132	0	28
23-31	--	3710	--	19	20	32	8.7	14	3.1	133	0	27
SEP.												
01-30	--	5660	--	19	20	33	8.6	14	3.2	136	0	30
WTD. AVG.	--	--	--	21	11	38	11	18	3.3	161	0	38
TIME WTD. AVG.	--	6460	--	21	11	38	11	18	3.3	160	0	37
TONS PER DAY	--	--	--	372	0	664	189	313	58	2810	0	668
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
26...	1010	5310	11.5	20	20	35	10	16	3.0	163	0	33
JAN.												
20...	0945	5620	2.0	22	20	42	12	18	4.6	174	0	61
APR.												
28...	2220	9000	4.5	23	10	43	12	20	3.8	175	0	46
JULY												
21...	0910	5890	15.5	20	30	30	8.9	16	3.2	135	0	30

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
26...	1010	5310	.070	80	0
NOV.					
23...	1080	5390	.070	--	--
DEC.					
16...	1400	5500	.080	--	--
JAN.					
20...	0945	5620	.040	100	0
FEB.					
24...	0930	5660	.080	--	--
MAR.					
23...	0930	5810	.050	--	--

06054500 MISSOURI RIVER AT TOSTON, MONT.

LOCATION.--Lat 46°08'46", long 111°25'18", in SE¼NW¼ sec.36, T.5 N., R.2 E., Broadwater County, at old highway bridge 2.4 miles downstream from gaging station, 2.4 miles upstream from Crow Creek, 10.2 miles downstream from Sixteenmile Creek, and at mile 2,289.6.

DRAINAGE AREA.--14,669 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: July to September 1972.

REMARKS.--Some regulation by six reservoirs on tributaries and Clark Canyon Reservoir. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
JULY											
18...	0930	3330	14	10	13	31	6.0	.8	216	.29	1940
AUG.											
22...	0930	3770	40	13	21	44	9.7	1.1	282	.38	2870
SEP.											
19...	1000	4100	37	12	20	37	11	1.2	226	.31	2500

DATE	HARD-NESS (CA,MG) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
JULY										
18...	76	.6	.00	--	.42	.42	.010	.030	.080	1.2
AUG.										
22...	150	.7	--	--	--	--	--	--	--	1.7
SEP.										
19...	140	.7	--	--	--	--	--	--	--	1.4

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
18...	0930	19.0	17.0	325	8.8	8.0	124	30	8
AUG.									
22...	0930	19.0	19.0	355	9.6	8.0	125	20	7
SEP.									
19...	1000	13.5	11.0	360	9.2	7.7	116	39	4

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MONT.

LOCATION.--Lat 46°38'58", long 111°43'39", in NW¼SE¼SE¼ sec.4, T.10 N., R.1 W., Lewis and Clark County, just downstream from generator outlet at Canyon Ferry Dam, 15 miles east of Helena, and at mile 2,242.8.

DRAINAGE AREA.--15,904 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1972.
Water temperatures: October 1967 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 247 mg/l May 1-31; minimum, 176 mg/l Aug. 1-20.
Hardness: Maximum, 160 mg/l Apr. 1-28; minimum, 110 mg/l Aug. 1-20.
Specific conductance: Maximum daily, 399 micromhos Mar. 27; minimum daily, 282 micromhos Aug. 1, 14, 19, 20.
Water temperatures: Maximum, 17.5°C Sept. 2; minimum, 1.5°C Jan. 3.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	5160	--	20	0	35	9.9	16	3.2	153	0	31
NOV.												
01-30	--	5410	--	20	10	34	10	17	3.4	154	0	34
DEC.												
01-31	--	5470	--	20	10	38	11	16	3.2	163	0	35
JAN.												
01-31	--	5590	--	22	10	40	12	19	3.5	173	0	51
FEB.												
01-29	--	5760	--	23	10	41	12	19	3.4	174	0	38
MAR.												
01-31	--	5440	--	23	0	41	12	19	3.7	179	0	43
APR.												
01-28	--	8500	--	23	10	44	12	20	3.5	178	0	40
MAY												
01-31	--	9900	--	22	10	42	12	20	3.4	174	0	50
JUNE												
01-30	--	9250	--	22	10	38	11	20	3.4	162	0	38
JULY												
01-31	--	6210	--	21	20	34	9.5	17	3.0	140	0	31
AUG.												
01-20	--	5920	--	19	20	31	8.4	14	3.0	132	0	28
23-31	--	3710	--	19	20	32	8.7	14	3.1	133	0	27
SEP.												
01-30	--	5660	--	19	20	33	8.6	14	3.2	136	0	30
WTD. AVG.	--	--	--	21	11	38	11	18	3.3	161	0	38
TIME WTD. AVG.	--	6460	--	21	11	38	11	18	3.3	160	0	37
TONS PER DAY	--	--	--	372	0	664	189	313	58	2810	0	668
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
26...	1010	5310	11.5	20	20	35	10	16	3.0	163	0	33
JAN.												
20...	0945	5620	2.0	22	20	42	12	18	4.6	174	0	61
APR.												
29...	2220	9000	4.5	23	10	43	12	20	3.8	175	0	46
JULY												
21...	0910	5890	15.5	20	30	30	8.9	16	3.2	135	0	30

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
26...	1010	5310	.070	80	0
NOV.					
23...	1000	5390	.070	--	--
DEC.					
16...	1400	5500	.080	--	--
JAN.					
20...	0945	5620	.040	100	0
FEB.					
24...	0930	5660	.080	--	--
MAR.					
23...	0930	5810	.050	--	--

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 282 mg/l Mar. 1-31, 1970; minimum, 172 mg/l July 8-31, 1971.
Hardness: Maximum, 164 mg/l Apr. 1-30, 1969; minimum, 100 mg/l Aug. 1-31, 1971.
Specific conductance: Maximum daily, 410 micromhos Apr. 25, 1969, Apr. 5, 1970; minimum daily, 241 micromhos Dec. 16, 1968.
Water temperatures: Maximum observed, 20.0°C Aug. 27, 1969; minimum, freezing point on several days during winter periods most years.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Dissolved solids, 255 mg/l Jan. 20, 248 mg/l Apr. 20. Records of discharge furnished by Canyon Ferry Project Office, Bureau of Reclamation, Helena, Mont. Flow completely regulated. Many diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
OCT.												
01-31	8.2	.7	.01	--	199	.27	2770	130	3	.6	323	8.0
NOV.												
01-30	8.2	.9	.00	--	203	.28	2970	130	0	.7	328	8.0
DEC.												
01-31	9.0	.9	.00	--	213	.29	3140	140	6	.6	341	8.3
JAN.												
01-31	8.8	.9	.02	--	242	.33	3650	150	7	.7	358	8.1
FEB.												
01-29	9.4	.9	.06	.000	233	.32	3620	150	9	.7	372	8.0
MAR.												
01-31	10	1.0	.15	.020	241	.33	3540	150	5	.7	384	8.1
APR.												
01-28	11	1.1	.04	.000	242	.33	5550	160	13	.7	393	7.5
MAY												
01-31	11	1.1	.02	.000	247	.34	6400	150	12	.7	386	8.0
JUNE												
01-30	10	1.3	.00	.000	223	.30	5570	140	7	.7	369	7.0
JULY												
01-31	9.0	1.0	.00	.010	194	.26	3250	120	9	.7	314	7.7
AUG.												
01-20	7.0	.8	.04	.000	176	.24	2810	110	4	.6	288	7.7
23-31	7.3	.8	.02	.010	177	.24	1770	120	7	.6	295	7.6
SEP.												
01-30	6.7	.8	.00	.020	182	.25	2780	120	6	.6	292	7.7
WTD. AVG.	9.3	1.0	.03	--	219	.30	--	139	7	.7	351	7.8
TIME WTD. AVG.	9.0	.9	.03	--	216	.30	--	138	7	.7	346	7.8
TONS PER DAY	162	17	.46	--	3820	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
26...	7.6	.9	.45	--	208	.28	2980	130	0	.6	315	7.9
JAN.												
20...	8.8	.6	.14	--	255	.35	3870	150	12	.6	364	7.8
APR.												
20...	12	1.0	.15	.000	248	.34	6030	160	13	.7	388	8.0
JULY												
21...	7.0	.9	.18	.010	184	.25	2930	110	1	.7	300	7.3

DATE	TIME	DISCHARGE (CFS)	DISSOLVED PHOSPHORUS (P) (MG/L)	DISSOLVED BORON (B) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)
APR.					
20...	2220	9000	.070	100	0
MAY					
23...	1445	10000	.030	--	--
JUNE					
16...	1020	5920	.050	--	--
JULY					
21...	0910	5890	.040	100	20
AUG.					
16...	1345	5850	.050	--	--
SEP.					
25...	0900	6050	.070	--	--

06058502 MISSOURI RIVER BELOW CANYON FERRY DAM, NEAR HELENA, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	323	317	339	347	365	376	395	387	378	346	282	291
2	317	318	340	348	365	380	395	386	378	334	299	288
3	316	321	338	348	366	380	395	386	378	330	299	288
4	318	321	336	347	370	378	395	387	376	320	277	288
5	314	320	336	350	371	380	395	385	376	345	299	288
6	316	323	339	348	370	382	396	384	375	335	299	288
7	315	323	336	349	374	385	396	385	374	334	290	288
8	317	324	341	352	370	380	395	382	375	323	290	288
9	325	323	341	353	370	376	394	384	372	336	290	288
10	327	321	331	353	370	376	394	384	376	326	285	288
11	327	324	331	356	370	376	389	382	376	316	290	288
12	329	322	332	359	372	380	394	382	366	316	290	289
13	325	326	333	361	376	382	394	382	369	332	285	290
14	325	327	331	357	370	378	390	382	356	316	282	290
15	320	328	329	358	370	378	385	382	360	299	293	290
16	320	331	331	358	370	375	384	382	365	308	296	290
17	318	331	331	359	370	380	387	382	365	315	288	290
18	318	331	335	361	375	380	385	383	360	300	288	290
19	326	332	339	361	377	385	387	383	356	309	282	290
20	316	333	338	362	376	395	390	384	356	291	282	296
21	318	331	341	358	372	394	390	382	357	299	---	296
22	317	331	345	357	376	380	392	381	357	301	---	296
23	317	331	342	362	379	387	389	381	350	289	290	296
24	317	335	339	365	380	385	390	381	351	293	299	299
25	320	336	341	370	382	389	394	381	356	300	299	297
26	316	332	345	368	382	391	394	382	349	297	299	297
27	317	332	343	366	383	399	390	382	350	283	299	297
28	317	334	345	366	377	394	394	382	342	286	302	297
29	316	333	344	366	384	394	---	378	347	302	290	302
30	316	333	345	365	---	395	---	379	340	294	285	302
31	317	---	343	368	---	394	---	380	---	288	290	---
MONTH	319	327	338	358	374	384	392	383	363	312	291	292
YEAR	344											

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	10.0	6.0	2.0	2.0	3.0	3.5	5.5	10.0	12.5	16.0	17.0
2	14.0	10.0	6.0	2.0	2.0	3.0	3.5	5.5	10.0	13.0	16.0	17.5
3	14.0	9.5	5.5	1.5	2.0	3.0	3.5	6.0	10.0	12.5	16.0	17.0
4	14.0	9.5	5.0	2.0	2.0	3.0	3.5	6.0	10.0	14.0	16.0	17.0
5	14.0	9.0	5.0	2.0	2.0	3.0	4.0	6.0	10.0	12.0	16.0	17.0
6	14.0	9.0	5.0	2.0	2.0	3.0	4.0	6.0	10.0	13.0	16.0	17.0
7	14.0	9.0	5.0	2.0	2.0	3.0	4.0	6.0	10.0	13.5	16.0	17.0
8	14.0	9.0	5.0	2.0	2.0	3.0	4.0	6.0	10.0	14.0	16.0	17.0
9	13.0	8.5	4.0	2.0	2.0	3.0	4.0	6.0	10.0	14.0	16.5	17.0
10	13.0	8.5	4.0	2.0	2.0	3.0	4.0	6.5	10.0	14.0	16.5	17.0
11	12.0	8.5	4.0	2.0	2.0	3.0	4.0	6.5	10.0	13.5	16.0	17.0
12	12.0	8.5	4.0	2.0	2.0	3.0	4.0	7.0	10.0	14.0	16.5	17.0
13	12.0	8.5	4.0	2.0	2.0	3.0	4.0	7.5	10.5	14.0	16.5	17.0
14	12.0	8.5	3.0	2.0	2.0	3.0	4.0	7.5	12.5	14.0	16.5	17.0
15	12.0	8.5	3.0	2.0	2.0	3.0	4.0	7.5	12.0	15.0	16.5	16.5
16	12.5	7.5	3.0	2.0	2.0	3.0	4.0	7.5	11.0	15.0	16.5	16.5
17	12.0	7.0	3.0	2.0	2.0	3.0	4.5	8.0	11.0	15.0	16.5	16.5
18	12.0	7.0	2.5	2.0	2.0	3.0	4.5	7.5	12.0	15.0	16.5	16.5
19	12.0	7.0	2.5	2.0	2.0	3.0	4.5	7.0	12.0	15.0	16.5	17.0
20	11.5	7.0	2.5	2.0	2.0	3.0	5.0	7.5	12.0	15.0	17.0	16.5
21	11.5	7.0	2.5	2.0	2.0	3.0	4.5	7.5	12.0	15.0	17.0	16.5
22	11.5	6.5	2.5	2.0	2.0	3.0	5.0	9.0	12.0	14.5	17.0	16.5
23	11.5	6.5	2.5	2.0	2.0	3.0	5.0	9.0	12.5	15.0	16.5	16.0
24	11.5	6.5	2.0	2.0	2.0	3.0	5.0	9.0	12.0	15.0	17.0	16.0
25	11.5	6.5	2.0	2.0	2.0	3.0	5.0	9.0	12.0	15.0	17.0	16.0
26	11.5	6.5	2.0	2.0	2.0	3.0	5.0	9.0	12.0	15.0	17.0	16.0
27	11.0	6.5	2.0	2.0	2.0	3.0	5.0	9.0	12.0	15.0	17.0	16.0
28	11.0	6.0	2.0	2.0	2.0	3.0	5.5	9.0	12.0	15.0	17.0	16.0
29	10.5	6.0	2.0	2.0	2.5	3.0	---	9.5	12.0	15.0	17.0	15.0
30	10.5	5.0	2.0	2.0	---	3.0	---	10.0	12.0	15.0	17.0	15.0
31	10.0	---	2.0	2.0	---	3.0	---	10.0	---	15.5	17.0	---
MONTH	12.5	8.0	3.5	2.0	2.0	3.0	4.5	7.5	11.0	14.5	16.5	16.5
YEAR	8.5											

06080000 SUN RIVER NEAR AUGUSTA, MONT.

LOCATION.--Lat 47°37'15", long 112°42'22", in NW¼SE¼NW¼ sec.36, T.22 N., R.9 W., Lewis and Clark County, temperature recorder at former gaging station site on right bank, 150 ft upstream from diversion dam and 18 miles northwest of Augusta.

DRAINAGE AREA.--60[illegible] sq mi.

PERIOD OF RECORD.--Water temperatures: October 1971 to September 1972 (discontinued).

EXTREMES.--1971-72:
Water temperatures: Maximum, 14.5°C Aug. 6, 16, 19, 28; minimum, freezing point on many days during December to March.

REMARKS.--Recorder inoperative Oct. 1-4, 28-31, Nov. 5-29, Jan. 15-17, Mar. 1-9; range in temperature (Nov. 5-29), 1.0°C to 4.0°C.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	2.0	2.0	---	---	0.5	0.5	0.0	0.0	---	---
2	---	---	2.0	2.0	---	---	2.0	0.5	0.0	0.0	---	---
3	---	---	2.0	1.5	---	---	4.0	2.0	0.0	0.0	---	---
4	---	---	2.0	1.5	0.5	0.0	3.0	1.5	0.0	0.0	---	---
5	10.5	10.0	---	---	0.5	0.0	1.5	0.5	0.0	0.0	---	---
6	10.5	9.5	---	---	1.5	0.0	0.5	0.0	0.0	0.0	---	---
7	10.0	10.0	---	---	3.0	1.5	0.0	0.0	0.0	0.0	---	---
8	10.0	9.5	---	---	2.0	0.0	0.0	0.0	0.0	0.0	---	---
9	10.0	9.0	---	---	0.5	0.0	0.0	0.0	0.0	---	---	---
10	10.0	9.5	---	---	2.0	0.5	0.0	0.0	0.0	---	1.5	0.0
11	9.5	9.0	---	---	2.0	0.5	0.0	0.0	0.0	---	3.0	0.5
12	9.0	8.5	---	---	2.0	0.5	0.0	0.0	0.0	---	3.5	1.0
13	9.0	8.5	---	---	1.5	1.0	0.0	0.0	0.0	---	3.5	2.0
14	9.0	8.5	---	---	1.0	0.5	0.0	0.0	0.0	---	3.5	2.0
15	9.0	7.0	---	---	3.0	1.0	---	---	0.0	---	4.0	3.0
16	8.0	7.0	---	---	3.0	0.0	---	---	0.0	---	4.5	3.5
17	7.0	6.5	---	---	0.0	0.0	---	---	0.0	0.0	5.5	3.5
18	7.0	6.5	---	---	0.5	0.0	0.0	0.0	0.0	0.0	4.5	4.0
19	7.0	6.5	---	---	0.5	0.0	0.0	0.0	0.0	0.0	5.0	4.5
20	7.0	6.5	---	---	1.0	0.5	0.0	0.0	0.0	0.0	5.0	4.0
21	7.0	6.5	---	---	1.5	0.5	0.0	0.0	0.0	0.0	5.0	3.5
22	7.0	6.0	---	---	3.0	0.5	0.0	0.0	0.0	0.0	4.5	3.5
23	6.5	5.5	---	---	3.0	2.0	0.0	0.0	0.0	0.0	5.0	4.5
24	6.0	5.5	---	---	2.0	0.5	0.0	0.0	0.0	0.0	5.0	3.5
25	5.5	5.0	---	---	3.0	2.0	0.0	0.0	0.0	0.0	5.0	4.0
26	5.5	5.0	---	---	3.5	2.0	0.0	0.0	0.0	0.0	4.0	3.5
27	5.5	5.5	---	---	2.0	1.0	0.0	0.0	0.0	0.0	4.5	3.5
28	---	---	---	---	1.5	1.0	0.0	0.0	0.0	0.0	4.5	3.5
29	---	---	---	---	2.0	1.5	0.0	0.0	0.0	0.0	5.5	4.5
30	---	---	---	---	1.5	1.0	0.0	0.0	---	---	5.0	4.5
31	---	---	---	---	1.0	0.5	0.0	0.0	---	---	5.0	4.0
MONTH	---	---	---	---	3.5	0.0	4.0	0.0	0.0	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.5	4.5	7.0	5.5	6.0	6.0	9.0	8.5	13.0	11.5	13.5	12.0
2	5.5	4.0	6.5	5.5	6.0	5.5	9.0	9.0	11.5	11.5	13.5	12.0
3	4.5	4.0	6.5	6.0	6.0	5.5	9.5	9.0	13.5	11.5	13.5	12.0
4	5.0	4.0	6.5	6.0	6.0	6.0	10.0	8.5	14.0	11.5	13.5	12.0
5	6.0	5.0	6.5	6.0	6.5	6.0	10.0	8.5	14.0	11.5	13.5	12.0
6	5.5	4.5	6.5	5.5	6.5	6.0	9.5	9.0	14.5	12.0	13.0	13.0
7	5.5	4.5	5.5	5.5	6.5	6.0	10.0	9.0	14.0	12.0	13.5	12.0
8	5.0	4.0	5.5	5.5	6.5	6.5	10.0	9.0	14.0	12.0	13.5	12.0
9	5.5	4.0	6.5	5.5	6.5	6.5	11.0	9.5	14.0	12.0	13.5	12.0
10	5.5	4.0	6.0	5.5	6.5	6.5	10.5	9.0	14.0	12.0	13.0	12.0
11	5.0	4.5	7.0	5.5	7.0	6.5	10.5	9.5	13.5	11.5	13.0	12.0
12	5.5	5.0	7.0	5.5	7.0	6.5	10.5	9.5	14.0	12.0	13.0	12.0
13	5.5	5.0	8.0	5.5	8.0	6.5	11.5	10.0	13.5	13.0	13.0	11.5
14	5.5	4.5	8.0	6.5	8.0	6.5	10.5	10.0	13.0	12.0	13.0	11.0
15	5.5	4.5	9.0	6.5	7.0	6.5	11.0	10.0	12.0	12.0	13.0	11.5
16	4.5	4.0	8.5	6.5	7.0	6.5	10.0	10.0	14.5	12.0	13.0	11.5
17	4.5	4.0	8.0	6.5	8.0	6.5	11.5	10.0	14.0	12.0	13.5	13.0
18	5.0	4.0	7.0	6.5	7.0	7.0	11.0	10.5	14.0	12.0	13.5	13.0
19	5.5	4.0	6.5	5.5	8.0	7.0	10.5	10.5	14.5	13.0	13.5	11.5
20	6.0	4.5	5.5	5.5	8.0	7.0	10.5	10.5	13.5	13.0	12.0	11.0
21	5.5	4.5	6.0	5.5	8.0	7.0	11.5	10.5	14.0	13.0	12.0	11.5
22	5.5	4.0	6.0	5.5	7.0	7.0	13.0	10.5	13.5	12.0	12.0	11.0
23	5.5	4.0	6.0	5.5	8.0	7.0	13.0	10.5	12.0	12.0	11.5	11.0
24	6.0	4.5	6.0	5.5	8.0	7.0	13.0	11.0	13.5	12.0	11.0	10.5
25	6.0	4.5	5.5	5.5	8.0	7.0	13.5	11.5	14.0	12.0	10.5	10.5
26	6.5	4.5	5.5	5.5	8.5	8.0	13.5	11.5	14.0	12.0	10.5	10.0
27	6.5	5.0	6.0	5.5	8.5	8.0	14.0	12.0	14.0	13.0	10.5	9.0
28	8.0	5.5	6.0	5.0	9.5	8.0	13.5	11.5	14.5	13.0	10.0	9.0
29	7.0	6.0	6.0	5.0	10.0	8.0	13.5	11.5	13.5	11.5	10.0	8.5
30	6.5	5.5	6.0	5.0	9.5	8.0	14.0	11.5	13.5	12.0	11.0	10.0
31	---	---	6.0	5.5	---	---	14.0	12.0	13.0	12.0	---	---
MONTH	8.0	4.0	9.0	5.0	10.0	5.5	14.0	8.5	14.5	11.5	13.5	8.5
YEAR	14.5	0.0										

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MONT.

LOCATION.--Lat 47°37'10", long 112°41'28", near center of east line of sec.36, T.22 N., R.9 W., Lewis and Clark County, Lewis and Clark National Forest, at gaging station 1 mile downstream from diversion dam, 16.5 miles northwest of Augusta, and at mile 95.6.

DRAINAGE AREA.--609 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1972.
Water temperatures: October 1967 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 280 mg/l Jan. 1-31; minimum, 103 mg/l June 1-30.
Hardness: Maximum, 230 mg/l Jan. 1-31; minimum, 95 mg/l June 1-30.
Specific conductance: Maximum daily, 465 micromhos Feb. 16; minimum daily, 170 micromhos on several days during June.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-27	--	526	--	4.8	0	44	11	1.8	.7	160	0	28
28-31	--	89	--	5.1	0	53	14	2.0	1.3	173	0	51
NOV.												
01-30	--	84	--	5.5	0	55	16	2.0	.9	181	0	73
DEC.												
01-31	--	85	--	5.7	0	60	17	2.0	.7	181	1	81
JAN.												
01-31	--	82	--	6.5	10	63	17	2.6	.8	190	0	95
FEB.												
01-29	--	112	--	5.7	10	62	17	2.3	.8	184	0	85
MAR.												
01-31	--	216	--	5.5	10	57	15	2.8	.8	186	0	62
APR.												
01-30	--	547	--	5.0	10	52	13	2.0	.8	178	0	44
MAY												
01-31	--	1380	--	5.4	10	38	9.0	1.4	.6	152	0	15
JUNE												
01-30	--	3510	--	4.6	20	28	6.0	1.1	.5	110	0	7.2
JULY												
01-31	--	311	--	4.2	20	28	6.9	1.1	.5	112	0	9.8
AUG.												
01-31	--	203	--	4.6	10	36	8.9	1.5	.6	137	0	17
SEP.												
01-30	--	299	--	4.6	10	40	9.8	1.5	.8	146	0	22
WTD. AVG.	--	--	--	4.9	14	36	8.5	1.4	.6	135	0	19
TIME WTD. AVG.	--	606	--	5.2	9	47	12	1.8	.7	160	0	45
TONS PER DAY	--	--	--	8.0	0	59	14	2.3	1.0	221	0	32
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	1100	599	10.0	4.8	10	47	11	1.6	.6	159	0	39
JAN.												
07...	1030	86	1.0	5.8	0	64	18	2.3	.7	187	0	87
MAR.												
31...	1100	544	3.0	5.3	10	52	14	2.1	.8	181	0	54
JULY												
06...	1430	279	21.5	4.4	40	--	--	--	--	112	0	12

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
07...	1100	599	.040	10	0
NOV.					
02...	1445	96	.070	--	--
30...	1415	92	.060	--	--
JAN.					
07...	1030	86	.010	30	17
MAR.					
01...	1600	160	.000	--	--
31...	1100	544	--	--	0

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MONT.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 15.0°C July 31, Aug. 18; minimum, freezing point Dec. 13, 26, Jan. 13, 26.

Period of record:
Dissolved solids: Maximum, 280 mg/l Jan. 1-31, 1972; minimum, 103 mg/l June 1-30, 1972.
Hardness: Maximum, 230 mg/l Jan. 1-31, 1972; minimum, 95 mg/l June 1-30, 1972.
Specific conductance: Maximum daily, 483 micromhos Jan. 29, 1971; minimum daily, 170 micromhos on several days in 1972.
Water temperatures: Maximum observed, 18.0°C Aug. 22, Sept. 2, 1970; minimum, freezing point on several days during winter periods most years.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Minimum observed during water year: Dissolved solids, 92 mg/l July 6; hardness, 55 mg/l July 6. Flow regulated by Gibson Dam. Diversions into two large feeder canals upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-27	1.9	.1	.00	--	171	.23	243	160	24	.1	301	8.2
28-31	2.0	.7	.00	--	214	.29	51.4	190	48	.1	365	8.3
NOV.												
01-30	.6	.5	.00	--	243	.33	55.1	200	55	.1	407	8.2
DEC.												
01-31	1.0	.3	.01	--	258	.35	59.2	220	70	.1	410	8.4
JAN.												
01-31	1.0	.3	.07	--	280	.38	62.0	230	71	.1	437	8.3
FEB.												
01-29	.4	.3	.03	.000	264	.36	87.0	220	74	.1	430	8.2
MAR.												
01-31	.6	.3	.04	.030	236	.32	138	200	51	.1	394	8.2
APR.												
01-30	.4	.3	.00	.000	205	.28	303	180	37	.1	348	7.5
MAY												
01-31	1.0	.2	.01	.000	145	.20	540	130	7	.1	246	8.0
JUNE												
01-30	1.0	.3	.01	.000	103	.14	976	95	4	.1	181	6.9
JULY												
01-31	.7	.2	.01	.000	107	.15	89.8	98	6	.0	190	7.9
AUG.												
01-31	.8	.2	.01	.000	137	.19	75.1	130	14	.1	247	7.8
SEP.												
01-30	.9	.1	.00	.000	152	.21	123	140	20	.1	264	7.8
WTD. AVG.	1.0	.3	.01	--	138	.19	--	125	14	.1	238	7.5
TIME WTD. AVG.	.9	.3	.02	--	192	.26	--	167	36	.1	322	8.0
TONS PER DAY	1.6	.4	.02	--	226	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	1.2	.4	.01	--	184	.25	298	160	32	.1	286	8.0
JAN.												
07...	.9	.4	.15	--	272	.37	63.1	230	80	.1	441	8.1
MAR.												
31...	1.3	.3	.08	.000	219	.30	322	190	39	.1	366	8.2
JULY												
06...	.4	.2	.00	.000	92	.13	69.3	55	0	.1	193	8.1

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
MAY					
01...	1600	862	.030	--	--
26...	1230	2040	.020	--	--
JULY					
06...	1430	279	.010	10	13
28...	1315	89	.030	--	--
AUG.					
31...	1230	602	.020	--	--

06080900 SUN RIVER BELOW DIVERSION DAM, NEAR AUGUSTA, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	319	399	414	435	440	412	372	334	206	186	212	252
2	305	398	433	429	448	412	363	333	190	185	212	252
3	305	396	416	432	---	413	362	328	190	184	214	263
4	285	396	407	440	448	407	340	324	189	189	214	267
5	283	372	422	435	452	408	358	328	182	189	220	267
6	293	372	425	440	452	407	358	326	182	194	215	267
7	293	380	385	434	452	406	359	326	181	195	215	267
8	305	399	399	438	448	412	353	323	178	198	228	267
9	302	389	413	440	452	413	353	321	173	198	228	267
10	283	403	413	438	452	423	350	307	174	198	223	267
11	285	398	414	440	452	399	350	308	170	195	223	267
12	293	408	419	440	447	410	350	306	170	198	223	267
13	305	421	419	442	447	412	352	311	170	196	230	274
14	293	414	427	441	447	413	352	311	170	191	227	274
15	293	414	408	435	447	424	350	306	174	191	225	274
16	302	395	429	435	465	419	341	303	172	191	232	274
17	302	396	431	---	421	407	341	297	175	196	232	263
18	305	396	429	---	421	399	342	236	170	195	238	263
19	305	441	420	436	418	396	342	229	170	198	238	263
20	305	421	424	440	418	397	342	236	170	198	245	267
21	308	409	431	438	418	390	342	239	177	200	248	267
22	308	411	432	435	415	401	342	235	180	201	248	267
23	308	399	429	438	414	404	342	229	177	203	248	267
24	308	393	291	440	415	388	342	227	177	209	248	267
25	308	410	425	440	410	391	344	223	178	216	243	274
26	308	406	424	446	410	383	342	221	178	216	252	267
27	308	398	439	---	415	377	342	221	181	216	258	267
28	350	398	431	438	413	381	344	225	183	216	254	286
29	352	390	437	438	410	386	344	216	183	216	254	274
30	380	398	303	441	---	377	342	213	183	223	254	274
31	378	---	429	441	---	369	---	207	---	223	254	---
MONTH	309	401	413	438	434	401	349	276	178	200	234	268
YEAR	324											

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.0	3.0	1.0	1.0	0.5	0.5	3.5	4.5	7.5	8.0	10.5	11.5
2	9.0	3.0	0.5	0.5	0.5	0.5	3.0	4.5	7.0	8.0	10.5	12.5
3	10.0	3.0	0.5	0.5	---	0.5	2.5	5.0	6.5	8.0	9.5	13.0
4	10.5	3.5	0.5	0.5	2.0	1.0	2.5	5.0	7.5	11.0	11.0	12.0
5	10.0	1.5	1.0	0.5	1.5	2.0	4.0	5.0	8.5	8.5	12.0	12.0
6	9.5	1.0	1.0	1.5	2.0	3.0	4.5	5.0	7.5	10.5	11.5	11.5
7	10.0	2.0	0.5	1.5	2.0	1.5	4.0	4.5	7.0	9.5	12.0	11.0
8	9.5	3.0	0.5	1.5	1.0	2.0	3.0	5.0	8.0	9.0	12.5	12.5
9	10.0	2.0	1.0	1.0	1.5	2.0	3.5	5.0	8.0	9.5	13.0	12.5
10	11.0	4.0	1.0	0.5	1.0	4.0	2.0	5.0	7.5	8.0	11.5	12.0
11	10.0	3.5	0.5	0.5	1.0	4.0	3.0	5.5	7.5	9.0	11.0	12.5
12	9.0	3.5	0.5	0.5	1.5	4.5	3.5	6.5	7.0	9.0	12.5	12.0
13	9.0	4.0	0.0	0.0	2.0	4.0	4.0	6.0	7.5	10.0	12.0	11.0
14	8.0	4.0	1.0	0.5	1.0	3.5	4.0	6.5	8.0	9.0	13.0	11.0
15	7.0	3.0	0.5	1.5	2.5	4.0	4.0	8.0	9.0	9.5	13.0	12.5
16	7.5	2.5	0.5	2.5	2.0	5.0	3.0	7.5	8.5	9.5	13.0	12.0
17	7.5	1.5	1.5	---	2.0	5.0	3.0	7.5	7.0	9.0	12.5	12.0
18	7.0	1.0	1.5	---	3.5	5.0	5.0	6.5	7.5	9.0	15.0	12.5
19	6.5	2.5	1.0	0.5	3.5	4.5	2.5	6.0	8.5	9.0	13.0	11.5
20	6.5	3.5	1.5	1.0	4.0	3.5	4.0	5.5	8.5	9.0	13.5	9.5
21	8.0	2.0	1.5	2.0	2.0	3.5	4.0	6.5	9.0	11.0	13.0	10.0
22	7.0	2.5	1.0	2.5	1.5	3.0	3.0	6.0	7.0	9.5	13.0	10.0
23	7.0	2.0	0.5	0.5	0.5	5.0	3.0	6.0	8.0	9.0	13.5	9.0
24	6.5	3.0	2.0	1.5	1.0	3.0	3.5	5.5	7.5	9.5	13.0	8.0
25	7.5	2.5	0.5	0.5	0.5	2.5	4.5	6.5	8.5	9.5	12.5	8.0
26	6.5	3.5	0.0	0.0	1.0	2.0	4.0	6.0	8.0	12.0	12.5	7.0
27	4.0	3.5	0.5	0.5	2.5	2.0	4.5	5.5	8.0	10.0	13.5	8.0
28	3.0	3.0	1.0	0.5	3.0	2.0	5.0	7.0	8.5	10.5	14.0	7.0
29	1.5	1.5	0.5	0.5	0.5	2.0	5.0	5.5	8.0	10.0	13.5	9.0
30	3.0	2.0	1.0	0.5	---	3.0	4.0	6.0	8.5	11.5	14.0	9.0
31	3.0	---	1.0	0.5	---	3.0	---	7.5	---	15.0	12.5	---
MONTH	7.5	2.5	1.0	1.0	1.5	3.0	3.5	6.0	8.0	9.5	12.5	10.5
YEAR	5.5											

06087850 SUN RIVER ABOVE MUDDY CREEK, NEAR VAUGHN, MONT.

LOCATION.--Lat 47°32'54", long 111°32'30", in NW¼SE¼NE¼ sec.25, T.21 N., R.1 E., Cascade County, temperature recorder on left bank 0.2 mile upstream from Muddy Creek and 0.9 mile south of Vaughn.

DRAINAGE AREA.--1,535 sq mi, approximately.

PERIOD OF RECORD.--Water temperatures: October 1971 to September 1972 (discontinued).

EXTREMES.--1971-72:
Water temperatures: Maximum, 24.5°C Aug. 8; minimum, freezing point on many days during November to April.

REMARKS.--Recorder inoperative Oct. 26-31, Nov. 4-9, Nov. 23 to Dec. 10, May 10, 11.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
2	---	---	0.0	0.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
3	---	---	1.0	0.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
4	---	---	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
5	---	---	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
6	---	---	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
7	12.0	11.0	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
8	11.5	9.0	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
9	13.0	9.5	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
10	13.0	10.0	3.0	2.0	---	---	0.0	0.0	0.0	0.0	1.0	0.0
11	12.0	10.0	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0
12	10.5	9.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
13	11.0	9.0	5.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
14	9.0	6.5	5.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.0
15	6.5	3.5	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	3.5
16	3.5	1.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	4.0
17	4.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	6.0
18	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	5.5
19	5.5	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	8.0
20	6.0	4.5	4.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	7.0
21	6.0	4.0	4.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	7.0	4.5
22	6.0	4.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	2.0
23	6.0	3.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	8.0	4.0
24	6.5	6.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	8.0	5.5
25	6.0	4.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	6.0	2.0
26	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.5
27	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
28	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
29	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0
30	---	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.0
31	---	---	---	---	0.0	0.0	0.0	0.0	---	---	8.0	3.5
MONTH	---	---	---	---	---	---	0.0	0.0	---	---	9.0	4.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.5	5.5	10.5	4.5	13.5	11.0	18.5	13.5	21.5	20.0	16.5	13.5
2	8.0	2.0	11.0	6.5	13.0	10.5	13.5	11.5	20.0	15.0	17.0	14.0
3	4.5	0.5	13.5	9.0	12.0	10.0	15.5	11.0	19.0	13.5	17.0	14.0
4	5.0	0.0	12.0	10.0	12.0	9.5	17.0	12.0	21.0	16.5	17.0	14.0
5	8.5	4.5	11.0	9.0	13.5	10.0	19.5	15.0	22.0	19.0	17.0	14.5
6	10.0	8.0	9.0	6.0	13.5	11.0	19.0	16.5	23.0	19.5	16.0	12.0
7	9.0	6.0	6.0	5.5	13.5	11.0	21.0	16.5	24.0	21.0	13.5	10.5
8	7.0	2.0	6.0	5.5	13.5	11.5	23.0	19.0	24.5	21.0	16.0	11.5
9	6.5	4.5	8.0	5.5	13.0	11.0	23.0	19.0	24.0	21.5	15.5	13.5
10	6.5	2.0	---	---	13.5	11.0	19.0	15.0	23.5	21.0	14.0	11.5
11	8.0	4.5	---	---	13.5	11.0	17.0	15.5	24.0	21.0	15.0	11.5
12	8.5	6.0	13.5	10.0	11.5	9.5	16.5	15.5	24.0	22.0	15.0	12.0
13	8.0	6.0	16.5	10.0	12.0	9.0	16.5	16.0	22.0	20.5	14.5	10.5
14	8.5	5.0	16.0	13.5	15.0	11.0	19.0	16.0	20.5	16.5	15.5	12.0
15	8.5	6.0	17.0	14.5	18.0	13.0	21.0	17.0	18.0	18.0	15.5	13.5
16	8.5	5.0	19.0	14.5	19.0	14.5	21.0	17.0	21.0	16.5	15.0	13.5
17	5.0	2.0	19.0	15.5	18.0	15.0	19.0	14.5	21.5	19.0	14.5	12.0
18	6.0	0.0	16.5	14.5	16.5	11.5	19.0	13.5	22.0	19.0	15.5	13.5
19	8.0	0.5	15.5	10.0	13.0	8.5	13.5	10.0	22.0	20.0	15.5	12.0
20	9.5	5.0	10.0	9.0	13.0	10.5	12.0	11.0	20.0	18.5	12.0	9.5
21	9.5	6.5	12.0	9.0	14.0	11.0	14.0	10.0	20.5	18.0	11.0	9.0
22	8.5	5.0	12.0	10.0	16.0	11.0	16.5	12.0	20.5	18.5	11.0	10.0
23	9.5	3.0	12.0	9.5	16.0	13.5	20.0	14.5	19.0	16.5	11.0	9.0
24	10.5	5.0	12.0	10.0	14.0	11.5	20.0	17.0	18.5	15.5	9.0	5.5
25	10.5	7.0	10.0	8.0	15.0	11.5	21.0	16.5	20.0	16.0	6.5	4.0
26	11.0	6.0	10.0	8.0	15.0	12.0	22.0	19.0	21.0	18.0	8.0	4.5
27	14.0	7.0	11.5	6.5	15.0	11.5	22.0	20.0	21.5	18.5	8.0	5.0
28	16.0	10.5	14.5	10.0	18.5	13.0	23.5	19.5	22.0	19.0	5.5	3.5
29	15.0	8.5	16.0	12.0	19.5	16.5	23.0	20.0	22.0	19.5	6.5	1.0
30	8.5	6.5	15.5	12.0	19.0	16.0	23.0	21.0	21.5	19.0	8.0	6.5
31	---	---	14.0	12.0	---	---	21.5	20.5	19.0	16.0	---	---
MONTH	16.0	0.0	19.0	4.5	19.5	8.5	23.5	10.0	24.5	13.5	17.0	1.0
YEAR	24.5	0.0										

06088300 MUDDY CREEK NEAR VAUGHN, MONT.

LOCATION.--Lat 47°37'30", long 111°38'05", in NW¼NE¼ sec.32, T.22 N., R.1 E., Cascade County, at gaging station at bridge on county road and 6.2 miles northwest of Vaughn.

DRAINAGE AREA.--282 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1968 to September 1972.
Water temperatures: July 1968 to September 1972.
Sediment records: July 1968 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 1,160 mg/l Mar. 9-12; minimum, 310 mg/l June 1-30.
Hardness: Maximum, 560 mg/l Apr. 1-8; minimum, 230 mg/l June 1-30.
Specific conductance: Maximum daily, 1,860 micromhos Mar. 11; minimum daily, 473 micromhos June 2, 26, 28.
Water temperatures: Maximum, 25.0°C Aug. 11, 28; minimum, freezing point on many days during October to March.
Sediment concentrations: Maximum daily, 1,830 mg/l May 27; minimum daily, 14 mg/l Oct. 20, 21.
Sediment discharge: Maximum daily, 3,670 tons May 26; minimum daily, 1.4 tons Feb. 5.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-11	--	127	--	5.3	0	35	48	46	1.8	272	0	160
12-31	--	77	--	6.0	10	40	62	64	2.1	319	0	220
NOV.												
01-30	--	52	--	7.0	0	48	64	72	2.2	334	0	250
DEC.												
01-31	--	39	--	9.9	0	38	66	72	2.2	284	19	250
JAN.												
01-31	--	22	--	11	10	60	67	73	2.4	365	0	260
FEB.												
01-18	--	29	--	9.4	10	49	61	71	2.9	299	9	250
19-29	--	41	--	8.8	10	63	70	90	3.7	308	12	350
MAR.												
01-08	--	40	--	8.1	20	59	68	89	3.5	302	0	320
09-12	--	46	--	7.9	10	65	83	190	5.2	224	0	670
13-31	--	39	--	6.6	10	71	82	120	3.1	312	4	480
APR.												
01-08	--	33	--	3.8	30	60	99	140	2.9	310	0	560
09-30	--	30	--	2.7	20	51	82	100	2.4	312	0	420
MAY												
01-05	--	31	--	2.7	10	52	94	150	2.6	304	0	540
06-31	--	148	--	8.4	10	49	28	30	1.8	226	0	120
JUNE												
01-30	--	243	--	6.9	20	43	29	27	1.9	237	0	82
JULY												
01-31	--	324	--	7.4	10	44	33	29	1.9	262	0	93
AUG.												
01-30	--	367	--	7.1	10	44	33	27	1.5	256	0	87
SEP.												
01-12	--	223	--	5.6	10	43	35	26	1.4	247	0	100
13-30	--	214	--	6.1	10	46	36	28	1.5	261	0	100
WTD. AVG.	--	--	--	7.1	11	45	39	38	1.9	262	1	133
TIME WTD. AVG.	--	133	--	7.3	10	49	54	62	2.2	287	3	227
TONS PER DAY	--	--	--	2.5	0	16	14	14	.7	94	0	47
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
06...	1710	113	15.5	4.7	10	52	57	48	1.6	319	0	170
JAN.												
17...	1700	18	.0	10	20	72	62	67	2.5	383	0	260
APR.												
06...	0830	31	7.5	1.9	20	83	93	130	3.0	367	0	510
JULY												
13...	1130	331	14.5	7.1	30	43	32	26	2.1	255	0	80

06088300 MUDDY CREEK NEAR VAUGHN, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 2,280 mg/l Apr. 28 to May 12, 1970; minimum, 310 mg/l June 1-30, 1972.
Hardness: Maximum, 939 mg/l Apr. 28 to May 12, 1970; minimum, 216 mg/l June 15-30, 1970.
Specific conductance: Maximum daily, 4,130 micromhos May 11, 1970; minimum daily, 365 micromhos Feb. 20, 1969.
Water temperatures: Maximum, 25.5°C July 23, 1971; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 4,230 mg/l Mar. 21, 1969; minimum daily observed, 11 mg/l Oct. 19, 1968.
Sediment discharge: Maximum daily, 10,700 tons Mar. 19, 1969; minimum daily, 1.4 tons Feb. 5, 1972.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Hardness, 590 mg/l Apr. 1-8. Flow affected by ice during most of winter months. Natural flow increased by wastage from Greenfields Irrigation Project.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-11	4.0	.8	1.1	--	440	.60	151	280	62	1.2	703	8.3
12-31	5.8	1.0	1.7	--	565	.77	117	350	93	1.5	882	8.3
NOV.												
01-30	6.2	1.2	.00	--	615	.84	86.3	380	110	1.6	964	8.3
DEC.												
01-31	6.6	1.1	2.3	--	615	.84	64.8	370	100	1.6	928	8.4
JAN.												
01-31	6.6	1.1	2.3	--	671	.91	39.9	430	130	1.5	995	8.4
FEB.												
01-18	6.9	1.0	2.1	.000	617	.84	48.3	370	110	1.6	937	8.4
19-29	11	1.0	3.3	.020	776	1.06	85.9	450	170	1.9	1140	8.5
MAR.												
01-08	10	.9	3.5	.010	723	.98	78.1	430	180	1.9	1070	8.3
09-12	14	.8	3.4	.040	1160	1.58	144	500	320	3.7	1620	8.3
13-31	13	1.0	3.7	.010	951	1.29	100	510	250	2.3	1320	8.4
APR.												
01-08	14	1.1	3.2	.000	1050	1.43	93.6	560	300	2.6	1480	7.9
09-30	11	1.1	2.1	.000	833	1.13	67.5	460	210	2.0	1210	7.9
MAY												
01-05	12	.9	1.9	.010	1010	1.37	84.5	520	270	2.9	1460	8.3
06-31	3.1	.3	.42	.000	354	.48	141	240	52	.8	566	8.1
JUNE												
01-30	2.0	.6	.22	.010	310	.42	203	230	32	.8	532	7.5
JULY												
01-31	2.6	.7	.48	.020	343	.47	300	250	31	.8	574	8.2
AUG.												
01-30	2.9	.6	.26	.000	330	.45	324	250	36	.8	548	7.9
SEP.												
01-12	2.6	.7	.42	.000	338	.46	204	250	49	.7	553	8.1
13-30	2.9	.7	.53	.000	352	.48	203	260	49	.8	587	8.1
WTD. AVG.	3.6	.7	.67	--	401	.55	--	275	57	1.0	646	8.0
TIME WTD. AVG.	6.0	.9	1.4	--	558	.76	--	346	105	1.4	853	8.2
TONS PER DAY	1.3	.2	.24	--	144	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
06...	2.8	.7	1.3	--	500	.68	153	360	100	1.1	804	8.1
JAN.												
17...	6.9	1.2	1.9	--	679	.92	33.7	430	120	1.4	1040	7.9
APR.												
06...	13	1.1	2.5	.000	1030	1.40	86.2	590	290	2.3	1430	8.1
JULY												
13...	2.0	.8	.70	.030	322	.44	288	240	30	.7	547	8.2

06088300 MUDDY CREEK NEAR VAUGHN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
06...	1710	113	.050	170	10
NOV.					
11...	1100	55	.11	--	--
DEC.					
14...	1230	47	.040	--	--
JAN.					
17...	1700	18	.030	220	20
FEB.					
08...	1430	27	.040	--	--
MAR.					
08...	1430	44	.010	--	--
APR.					
06...	0830	31	.030	250	40
MAY					
11...	0940	93	.030	--	--
JUNE					
08...	1540	228	.050	--	--
JULY					
13...	1130	331	.060	120	21
AUG.					
16...	1150	422	.050	--	--
SEP.					
15...	1225	211	.030	--	--

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	618	922	1040	997	938	1200	1780	1510	487	502	583	527
2	654	919	1030	944	1030	1220	1660	1750	473	485	582	552
3	640	957	1080	977	1000	1150	1580	1500	482	483	554	562
4	683	---	964	997	984	---	1440	1390	524	506	499	562
5	751	1090	977	1030	1000	---	1350	1330	497	538	594	523
6	---	1180	917	1080	1000	---	1380	588	515	573	549	562
7	791	1000	1140	1010	1000	1130	1320	658	539	520	573	527
8	793	919	1140	997	971	1050	1320	616	508	522	582	527
9	---	914	---	984	993	1330	1270	634	534	551	535	552
10	816	943	1110	1010	1030	1650	1240	625	535	540	540	562
11	837	994	1030	965	1000	1860	1240	564	572	532	540	562
12	918	994	955	921	1020	1600	1270	523	518	---	514	614
13	910	965	997	1080	1020	1360	1220	586	518	529	523	586
14	844	940	993	1080	1000	1300	1240	577	504	590	523	573
15	901	904	961	1080	1030	1310	1220	511	548	617	577	610
16	883	938	987	1010	971	1240	1210	525	537	598	577	616
17	912	917	993	1010	1000	1290	1240	523	536	569	560	610
18	891	965	997	1010	1010	1310	1240	514	526	526	538	586
19	886	1000	997	1020	1100	1350	1260	605	525	617	538	695
20	883	971	993	1020	1100	1310	1290	530	555	560	538	623
21	858	976	964	1010	1260	1310	1240	573	576	563	672	610
22	912	957	997	1020	1160	1310	1210	540	590	549	555	598
23	918	1100	1030	1010	1200	1330	1220	561	602	608	560	598
24	916	938	1090	1010	1300	1400	1190	535	591	596	521	562
25	901	1030	1010	1020	1130	1360	1210	491	554	580	540	562
26	918	1080	1050	1030	1120	1360	1220	493	473	613	505	562
27	---	985	1020	1020	1160	1460	1220	499	474	626	491	562
28	1040	1200	1030	1010	1070	1240	1210	614	473	622	491	562
29	1040	1060	1060	1010	1110	1310	1240	527	479	633	487	562
30	971	1020	1050	1020	---	1460	1290	485	498	655	503	584
31	891	---	1030	1010	---	1760	---	491	---	521	---	---
MONTH	856	992	1020	1010	1040	1360	1300	712	525	564	542	577
YEAR	873											

06088300 MUDDY CREEK NEAR VAUGHN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	1.0	0.0	0.5	0.0	0.0	5.0	14.0	22.0	12.0	20.0	18.0
2	9.0	1.0	0.0	0.0	0.0	1.0	5.0	13.5	21.5	13.0	14.0	14.0
3	11.5	3.0	1.0	0.0	0.0	0.0	5.0	17.5	13.0	15.0	20.0	15.0
4	15.0	---	1.0	0.0	0.0	---	7.0	14.0	22.0	20.0	23.0	13.0
5	16.0	1.0	2.0	0.0	0.0	1.0	13.0	12.0	22.0	21.5	21.0	16.0
6	15.5	0.0	0.0	1.0	0.0	1.0	12.5	7.0	24.5	20.0	21.0	12.0
7	14.5	0.5	0.0	1.0	0.0	0.5	8.0	6.5	24.0	23.0	23.5	15.5
8	14.0	1.0	0.0	0.0	1.0	0.5	4.0	7.0	22.5	15.0	20.0	18.0
9	11.0	1.0	---	0.0	1.0	2.0	7.0	12.0	21.0	18.0	22.0	15.0
10	14.0	2.0	0.0	0.0	0.5	3.0	10.0	13.0	15.0	18.5	21.5	16.5
11	12.0	7.0	0.0	0.5	1.5	2.0	10.0	13.5	16.0	17.5	25.0	16.0
12	12.0	6.5	0.0	0.5	1.5	2.0	12.0	16.0	15.0	---	21.0	12.0
13	11.5	8.0	0.0	0.0	1.0	3.0	10.0	9.0	18.5	18.0	18.0	16.0
14	9.0	5.0	0.0	0.0	1.0	3.0	10.0	11.0	20.0	20.0	16.0	17.0
15	5.0	3.0	0.0	1.0	1.0	7.0	10.0	20.0	23.0	14.0	15.0	16.0
16	2.0	2.0	0.0	1.5	2.0	9.0	5.0	21.0	21.0	15.0	15.0	11.0
17	6.0	2.0	1.0	0.0	2.0	9.0	2.0	18.0	14.5	20.0	22.0	14.0
18	7.0	1.5	0.0	0.0	2.0	8.0	9.0	18.0	15.0	12.0	19.0	17.0
19	9.0	3.0	1.0	0.0	1.0	7.0	12.0	11.0	19.0	13.0	19.0	12.0
20	9.0	8.0	0.0	0.0	2.0	8.0	13.0	10.0	20.0	11.0	20.0	11.0
21	7.5	7.0	1.0	1.0	1.0	7.0	12.0	10.5	17.0	11.0	21.0	12.5
22	6.0	2.0	0.0	0.0	0.0	10.0	11.0	15.0	20.0	12.0	17.0	12.0
23	5.0	1.0	0.0	0.5	0.0	7.5	4.0	17.0	16.0	20.0	17.5	10.0
24	5.0	2.0	0.0	0.0	0.0	7.0	12.0	14.0	13.0	20.5	20.5	6.0
25	7.0	4.0	0.0	0.0	0.0	4.0	12.0	14.0	12.0	22.0	21.0	9.0
26	7.0	1.0	0.0	0.0	0.0	1.0	15.0	9.0	16.0	23.0	16.0	11.0
27	---	3.0	0.0	0.0	0.0	5.0	17.0	8.0	11.0	23.0	23.0	7.0
28	0.0	1.0	0.0	0.0	0.0	6.0	18.0	10.0	12.0	24.0	25.0	6.0
29	1.0	1.0	0.0	0.0	0.0	6.5	9.0	12.0	21.0	15.0	24.0	9.0
30	1.0	1.0	0.0	0.0	---	10.0	6.5	21.0	20.5	16.0	20.0	8.0
31	4.0	---	0.0	0.0	---	4.0	---	21.5	---	22.0	---	---
MONTH	8.5	2.5	0.0	0.0	0.5	4.5	9.5	13.5	18.5	17.5	20.0	13.0
YEAR	9.0											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM
MAY 06...	1000	7.0	141	2010	765	45	62	91	97	100

06088300 MUDDY CREEK NEAR VAUGHN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	169	47	21	60	190	31	46	134	17
2	174	62	29	65	160	26	45	148	18
3	177	59	28	59	157	22	45	157	19
4	146	71	28	57	107	16	44	99	11
5	117	54	17	53	124	18	43	110	14
6	111	46	14	50	144	19	41	114	15
7	106	36	10	50	109	15	41	143	16
8	105	33	9.2	52	69	9.7	41	119	13
9	100	43	12	53	99	14	41	116	13
10	95	28	7.2	54	114	17	41	123	14
11	94	25	6.3	56	116	18	40	185	20
12	92	33	8.2	55	132	20	40	127	14
13	90	32	7.8	55	138	20	38	124	13
14	88	19	4.5	55	109	16	37	166	17
15	89	25	6.0	54	95	14	36	96	9.3
16	92	40	9.9	53	109	16	36	142	14
17	92	42	10	54	123	18	37	179	17
18	86	29	6.7	52	135	19	39	170	18
19	84	23	5.2	54	136	20	41	189	12
20	80	14	3.0	52	117	16	42	109	12
21	77	14	2.9	51	96	13	42	101	11
22	74	26	5.2	49	96	13	40	101	11
23	73	34	6.7	40	151	16	37	97	9.7
24	72	33	6.4	35	160	24	34	96	8.8
25	70	16	3.0	48	132	17	33	136	12
26	69	19	3.5	46	125	16	33	162	14
27	65	23	4.0	33	90	13	33	134	12
28	60	102	17	45	116	14	33	121	11
29	58	117	18	50	141	19	33	117	10
30	58	107	17	53	138	20	34	129	11
31	59	147	23	--	--	--	34	135	12
TOTAL	2920	--	349.7	1578	--	529.7	1200	--	416.8

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	34	140	13	20	29	1.6	38	68	7.0
2	33	85	7.6	20	47	2.5	37	63	6.3
3	32	102	8.8	20	49	2.6	37	62	6.2
4	32	106	9.2	19	34	1.7	39	88	9.3
5	29	111	8.7	19	28	1.4	40	365	39
6	29	100	7.8	20	31	1.7	42	314	36
7	29	106	8.3	24	32	2.1	43	130	15
8	28	108	8.2	28	70	5.3	44	135	16
9	28	106	8.0	30	93	7.5	45	965	117
10	27	103	7.5	32	99	8.6	46	1670	207
11	26	71	5.0	33	97	8.6	46	1380	171
12	22	54	3.2	34	98	9.0	47	1210	154
13	18	61	3.0	34	112	10	48	1050	136
14	16	56	2.4	34	111	10	49	624	83
15	17	83	3.8	35	132	12	50	465	63
16	19	80	4.1	36	259	25	52	422	59
17	20	75	4.1	40	273	29	48	371	48
18	25	52	2.8	45	218	26	43	258	30
19	18	56	2.7	50	161	22	41	270	30
20	17	51	2.3	44	180	21	38	269	28
21	20	51	2.8	40	198	21	36	242	24
22	19	56	2.9	38	143	15	36	183	18
23	18	58	2.8	37	116	12	36	197	19
24	17	58	2.7	37	106	11	32	196	17
25	16	52	2.2	38	86	8.8	35	138	13
26	16	44	1.9	41	88	9.7	28	168	13
27	15	46	1.9	42	96	11	28	313	24
28	16	53	2.3	41	90	10	28	429	32
29	17	47	2.2	48	63	8.8	34	248	23
30	18	50	2.4	--	--	--	36	139	14
31	19	37	1.9	--	--	--	37	123	12
TOTAL	685	--	146.5	971	--	312.9	1239	--	1469.8

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	37	124	12	30	40	3.2	233	1040	654
2	36	98	9.5	29	36	2.8	242	998	652
3	33	99	8.8	28	44	3.3	224	653	395
4	33	85	7.6	27	42	3.1	212	446	255
5	34	38	3.5	40	161	54	239	690	445
6	32	36	3.1	131	1710	695	204	686	378
7	31	23	1.9	138	968	361	188	559	284
8	30	39	3.2	143	818	316	202	506	276
9	30	42	3.4	166	1130	506	199	602	323
10	30	32	2.6	122	668	220	191	611	315
11	31	29	2.4	90	398	97	169	454	207
12	31	29	2.4	93	296	74	202	489	267
13	31	32	2.7	98	409	108	202	452	247
14	31	31	2.6	88	323	77	212	261	149
15	30	27	2.2	98	356	94	167	176	79
16	31	40	3.3	97	353	92	182	500	246
17	31	43	3.6	119	450	145	225	580	352
18	30	45	3.6	120	443	144	239	464	299
19	29	36	2.8	80	289	62	249	486	327
20	30	50	4.1	137	1020	402	196	332	176
21	29	44	3.4	159	990	425	208	384	216
22	29	41	3.2	131	634	224	199	302	162
23	29	47	3.7	110	428	127	216	336	196
24	29	48	3.8	142	758	291	285	638	491
25	31	55	4.6	172	923	429	339	920	842
26	30	45	3.6	241	1440	3670	428	1410	1630
27	28	35	2.6	303	1830	1510	405	936	1020
28	27	38	2.8	201	968	525	388	1810	1900
29	30	74	6.0	222	990	593	339	1100	1010
30	32	60	5.2	220	788	468	318	536	460
31	--	--	--	225	833	506	--	--	--
TOTAL	925	--	124.2	4000	--	12187.4	7302	--	14253

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	338	408	372	295	563	448	255	131	90
2	386	624	650	402	889	1020	235	126	80
3	398	748	804	478	696	898	227	104	64
4	357	716	690	338	506	462	227	117	72
5	316	792	676	314	429	364	231	135	84
6	250	520	351	303	325	266	231	117	73
7	271	430	315	313	367	310	218	141	83
8	269	315	229	317	374	320	216	124	72
9	230	320	199	382	546	563	206	67	37
10	270	435	317	337	357	325	201	88	48
11	275	375	278	333	339	305	200	83	45
12	295	470	374	389	431	453	234	115	73
13	301	502	408	395	341	364	239	152	98
14	264	415	296	525	548	777	214	138	80
15	272	390	286	507	626	857	213	141	81
16	273	430	317	441	607	723	202	147	80
17	298	440	354	467	646	815	198	146	78
18	287	302	234	457	574	708	206	124	69
19	511	926	1280	439	284	337	221	175	104
20	623	1720	2890	398	302	325	197	142	76
21	644	1500	2610	347	284	266	189	151	77
22	535	1110	1600	324	270	236	193	207	108
23	360	662	643	354	278	266	204	167	92
24	327	470	415	338	204	186	219	144	85
25	309	392	327	344	266	247	232	138	86
26	255	297	204	345	312	291	242	139	91
27	214	286	165	327	280	247	230	152	94
28	200	290	157	285	194	149	225	150	91
29	188	232	118	269	198	144	217	146	86
30	203	412	226	254	173	119	212	132	76
31	282	597	455	242	139	91	--	--	--
TOTAL	10001	--	18240	11259	--	12882	6534	--	2373

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 48614
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 63289.0

06088500 MUDDY CREEK AT VAUGHN, MONT.

LOCATION.--Lat 47°33'42", long 111°32'33", near center of S½NE¼ sec.24, T.21 N., R.1 E., Cascade County, at gaging station at old highway bridge at Vaughn, 1.5 miles upstream from mouth.

DRAINAGE AREA.--314 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1967 to September 1968, July to September 1972.
Water temperatures: October 1967 to September 1968, July 1971 to September 1972.
Sediment records: October 1967 to September 1968, July 1971 to September 1972.

EXTREMES.--July 1971 to September 1972:
Water temperatures: Maximum, 24.0°C July 23, 1971; minimum, freezing point on many days during November to March.
Sediment concentrations: Maximum daily, 13,500 mg/l July 4, 1971; minimum daily, 21 mg/l Feb. 6.
Sediment discharge: Maximum daily, 13,100 tons July 4, 1971; minimum daily, 1.2 tons Feb. 6.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
JULY												
01-31	--	398	--	7.4	20	50	33	32	2.1	258	0	120
AUG.												
01-31	--	447	--	7.0	10	48	32	29	1.6	257	0	110
SEP.												
01-30	--	270	--	6.0	20	49	34	31	1.2	252	0	120
WTD. AVG.	--	--	--	6.9	16	49	33	31	1.7	256	0	116
TIME WTD. AVG.	--	373	--	6.8	17	49	33	31	1.6	256	0	117
TONS PER DAY	--	--	--	7.0	0	49	33	31	1.7	258	0	117
ANALYSIS OF ADDITIONAL SAMPLES												
JULY												
13...	1730	387	16.5	6.9	10	49	33	29	2.2	259	0	100

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
JULY					
13...	1730	387	.050	120	14
AUG.					
16...	1745	524	.040	--	--
SEP.					
14...	1700	254	.020	--	--

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 1,190 mg/l Apr. 7-30, 1968; minimum, 333 mg/l July 8-18, 1968.
Hardness: Maximum, 586 mg/l Apr. 7-30, 1968; minimum, 227 mg/l July 8-18, 1968.
Specific conductance: Maximum daily, 1,940 micromhos Mar. 3, 1968; minimum daily, 501 micromhos July 2, 3, 1972.
Water temperatures: Maximum, 24.0°C July 23, 1971; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 13,500 mg/l July 4, 1971; minimum daily, 21 mg/l Feb. 6, 1972.
Sediment discharge: Maximum daily, 13,100 tons July 4, 1971; minimum daily, 1.2 tons Feb. 6, 1972.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Thermograph attachment installed Oct. 7; removed Sept. 30. Flow affected by ice during most of winter months. Natural flow increased by wastage from Sun River Canal and by return flow from irrigation.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
JULY 01-31	2.6	.7	.38	.010	376	.51	404	260	49	.9	616	7.9
AUG. 01-31	3.0	.6	.20	.010	359	.49	433	250	41	.8	588	7.7
SEP. 01-30	2.4	.6	.29	.000	369	.50	271	260	56	.8	578	7.7
WTD. AVG.	2.7	.6	.29	.008	367	.50	--	256	47	.8	596	7.8
TIME WTD. AVG.	2.7	.6	.29	.007	368	.50	--	257	49	.8	594	7.8
TONS PER DAY	2.7	.6	.29	.008	370	--	--	--	--	--	--	--
ANALYSIS OF ADDITIONAL SAMPLES												
JULY 13...	2.0	.8	.64	.020	353	.48	369	260	46	.8	584	8.2

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) JULY TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	524	589	566
2	---	---	---	---	---	---	---	---	---	501	604	578
3	---	---	---	---	---	---	---	---	---	501	612	578
4	---	---	---	---	---	---	---	---	---	516	612	578
5	---	---	---	---	---	---	---	---	---	536	596	578
6	---	---	---	---	---	---	---	---	---	570	596	578
7	---	---	---	---	---	---	---	---	---	612	592	578
8	---	---	---	---	---	---	---	---	---	570	592	566
9	---	---	---	---	---	---	---	---	---	609	592	566
10	---	---	---	---	---	---	---	---	---	586	560	587
11	---	---	---	---	---	---	---	---	---	586	575	610
12	---	---	---	---	---	---	---	---	---	571	575	610
13	---	---	---	---	---	---	---	---	---	579	575	610
14	---	---	---	---	---	---	---	---	---	602	575	587
15	---	---	---	---	---	---	---	---	---	630	598	587
16	---	---	---	---	---	---	---	---	---	626	633	610
17	---	---	---	---	---	---	---	---	---	630	600	634
18	---	---	---	---	---	---	---	---	---	617	600	634
19	---	---	---	---	---	---	---	---	---	713	565	634
20	---	---	---	---	---	---	---	---	---	687	563	660
21	---	---	---	---	---	---	---	---	---	626	563	660
22	---	---	---	---	---	---	---	---	---	602	563	610
23	---	---	---	---	---	---	---	---	---	621	553	610
24	---	---	---	---	---	---	---	---	---	617	553	610
25	---	---	---	---	---	---	---	---	---	613	557	587
26	---	---	---	---	---	---	---	---	---	614	530	587
27	---	---	---	---	---	---	---	---	---	635	530	566
28	---	---	---	---	---	---	---	---	---	659	530	566
29	---	---	---	---	---	---	---	---	---	662	555	566
30	---	---	---	---	---	---	---	---	---	674	535	566
31	---	---	---	---	---	---	---	---	---	607	575	---
MONTH	---	---	---	---	---	---	---	---	---	603	576	595

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

TEMPERATURE (°C) OF WATER, JULY TO SEPTEMBER 1971
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	20.0	19.0	15.0
2	---	---	---	---	---	---	---	---	---	16.0	19.0	16.0
3	---	---	---	---	---	---	---	---	---	14.0	20.0	15.0
4	---	---	---	---	---	---	---	---	---	---	19.0	14.0
5	---	---	---	---	---	---	---	---	---	19.0	20.0	14.0
6	---	---	---	---	---	---	---	---	---	16.0	20.5	16.0
7	---	---	---	---	---	---	---	---	---	11.0	21.0	17.0
8	---	---	---	---	---	---	---	---	---	14.0	21.0	18.0
9	---	---	---	---	---	---	---	---	---	16.0	22.0	16.0
10	---	---	---	---	---	---	---	---	---	16.0	21.5	18.0
11	---	---	---	---	---	---	---	---	---	19.0	22.0	15.0
12	---	---	---	---	---	---	---	---	---	18.5	21.5	13.0
13	---	---	---	---	---	---	---	---	---	20.0	21.0	15.0
14	---	---	---	---	---	---	---	---	---	15.0	18.0	14.0
15	---	---	---	---	---	---	---	---	---	17.0	20.0	11.5
16	---	---	---	---	---	---	---	---	---	16.0	15.0	10.0
17	---	---	---	---	---	---	---	---	---	20.0	17.0	10.0
18	---	---	---	---	---	---	---	---	---	17.0	16.0	8.0
19	---	---	---	---	---	---	---	---	---	23.0	17.0	11.0
20.	---	---	---	---	---	---	---	---	---	23.0	19.0	8.0
21	---	---	---	---	---	---	---	---	---	22.0	18.0	10.0
22	---	---	---	---	---	---	---	---	---	23.0	17.0	12.5
23	---	---	---	---	---	---	---	---	---	24.0	18.0	13.0
24	---	---	---	---	---	---	---	---	---	17.0	18.5	12.5
25	---	---	---	---	---	---	---	---	---	16.0	18.5	11.5
26	---	---	---	---	---	---	---	---	---	20.0	20.5	11.5
27	---	---	---	---	---	---	---	---	---	18.0	20.0	10.5
28	---	---	---	---	---	---	---	---	---	16.0	19.0	10.0
29	---	---	---	---	---	---	---	---	---	18.5	19.0	9.5
30	---	---	---	---	---	---	---	---	---	20.0	16.0	7.0
31	---	---	---	---	---	---	---	---	---	18.0	17.0	---
MONTH	---	---	---	---	---	---	---	---	---	18.0	19.0	13.0

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	---	---	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	---	---	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.5	11.0	0.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	11.5	9.5	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	13.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	13.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	11.5	10.0	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	11.0	9.0	4.5	0.0	1.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
13	10.5	8.5	6.0	4.5	1.0	0.0	2.0	0.5	0.0	0.0	0.0	0.0
14	9.0	6.5	4.5	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.5	0.5
15	6.5	3.5	3.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	3.0	0.5
16	4.0	3.0	2.0	1.0	1.5	0.0	0.0	0.0	0.0	0.0	5.5	0.5
17	6.0	3.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	4.5
18	6.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	6.0
19	7.0	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	6.5
20	8.0	5.5	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	6.0
21	7.0	5.5	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	8.5	5.5
22	7.0	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	6.0
23	7.0	5.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	10.0	8.5
24	7.0	5.5	0.5	0.0	1.0	0.0	0.0	0.0	0.0	0.0	8.5	5.0
25	5.5	3.5	0.5	0.0	0.5	0.5	0.0	0.0	0.0	0.0	8.5	5.5
26	6.5	3.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	5.5	3.0
27	3.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	9.0	3.0
28	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	4.0
29	1.5	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	8.5	5.5
30	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	9.5	6.0
31	0.5	0.5	---	---	0.0	0.0	0.0	0.0	---	---	11.5	6.5
MONTH	13.5	0.5	6.0	0.0	1.5	0.0	3.0	0.0	0.0	0.0	11.5	0.0

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, JULY TO SEPTEMBER 1971

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
JULY											
07...	0600	11.0	441	11100	13200	13	19	45	64	91	100

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	8.0	16.0	5.0	19.5	16.5	18.5	14.5	20.0	18.5	18.0	15.5
2	10.0	5.5	15.0	8.0	19.5	16.0	14.5	12.0	19.5	15.0	18.0	15.5
3	9.0	3.5	19.5	9.5	19.0	15.5	15.5	13.0	19.0	14.5	18.5	15.5
4	8.5	4.0	16.0	10.0	18.5	14.5	18.5	14.0	20.5	17.0	18.0	15.5
5	13.0	6.0	14.5	10.0	19.5	15.5	19.0	15.5	20.5	18.5	18.0	16.0
6	14.0	9.0	10.0	6.5	20.0	16.5	19.0	17.0	21.5	19.0	17.0	14.0
7	11.0	6.5	7.0	6.0	20.5	18.0	20.5	17.0	22.0	19.5	15.0	12.0
8	11.5	4.0	7.0	6.5	20.5	18.5	21.0	18.5	22.0	20.0	16.5	14.0
9	10.5	4.0	10.0	7.0	20.5	18.0	21.0	17.0	22.0	20.0	16.5	15.0
10	11.0	3.5	13.5	9.0	20.0	17.0	17.0	14.5	21.5	19.0	16.0	14.0
11	11.5	5.5	15.0	11.0	20.0	15.5	18.0	15.5	21.5	19.0	16.5	14.0
12	13.0	6.5	14.5	10.5	15.5	11.5	17.0	15.0	22.0	19.5	16.5	14.5
13	10.5	6.5	---	---	15.5	10.5	18.0	16.0	20.0	18.5	15.0	13.0
14	12.0	4.0	16.5	13.0	18.5	15.0	18.5	16.5	19.0	17.0	15.5	14.5
15	13.0	5.0	16.5	13.0	20.0	16.5	20.5	16.5	19.0	16.5	15.5	14.5
16	8.0	5.5	19.0	14.0	20.5	18.5	20.5	16.0	20.5	17.0	15.0	14.0
17	7.0	3.0	17.0	14.5	20.0	17.0	18.0	13.5	20.5	18.0	14.5	13.0
18	11.5	2.0	15.5	13.5	19.0	14.5	18.0	12.0	21.0	18.5	14.5	13.5
19	13.0	4.0	14.0	10.0	16.0	12.0	13.0	10.5	21.0	19.0	15.0	12.0
20	13.5	6.0	10.0	9.5	16.5	15.0	13.0	11.5	20.0	18.0	12.0	10.0
21	13.0	6.5	14.0	9.5	16.5	15.0	15.0	11.0	21.0	18.0	10.5	10.0
22	13.0	3.0	13.0	10.0	18.0	14.5	16.0	13.0	21.0	19.0	11.5	10.5
23	14.5	4.5	14.5	9.5	18.0	15.0	19.0	14.5	19.5	17.0	11.5	9.5
24	13.5	6.5	13.5	10.5	16.0	14.0	19.0	16.5	19.5	18.0	9.5	6.5
25	14.5	8.5	12.0	9.5	16.0	13.5	20.0	16.5	20.5	18.0	8.0	6.0
26	17.0	6.5	11.0	9.5	16.5	13.5	20.5	18.0	21.0	18.5	8.5	7.0
27	19.5	8.5	14.5	8.5	16.5	13.5	20.5	18.5	21.5	19.0	8.5	6.5
28	20.5	10.0	16.0	11.5	19.0	14.0	21.0	18.5	21.5	19.5	6.5	5.5
29	14.5	9.0	18.0	14.0	19.0	16.0	21.0	19.0	21.5	19.5	7.0	5.0
30	10.5	7.0	19.5	15.0	18.5	15.5	21.5	19.5	21.5	19.0	8.5	7.0
31	---	---	19.5	17.0	---	---	20.5	19.0	19.5	17.0	---	---
MONTH	20.5	2.0	19.5	5.0	20.5	10.5	21.5	10.5	22.0	14.5	18.5	5.0
YEAR	22.0	0.0										

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, JULY TO SEPTEMBER 1971

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	336	7250	6580	468	2030	2570	399	963	1040
2	318	7060	6060	450	1870	2270	409	1010	1120
3	349	13200	12400	445	1670	2010	391	882	931
4	360	13500	13100	446	1650	1990	377	972	989
5	362	10700	10500	418	1370	1550	363	882	864
6	355	6500	6230	414	1480	1650	327	594	524
7	423	7700	8790	423	1760	2010	289	486	379
8	391	1930	2040	414	1500	1680	260	365	254
9	392	1960	2070	452	1800	2200	236	347	221
10	341	1200	1100	428	1690	1950	228	361	222
11	333	1250	1120	436	1540	1810	220	345	205
12	352	1460	1390	388	1260	1320	211	339	193
13	310	1130	946	354	1100	1050	211	295	168
14	294	733	582	426	1600	1840	199	259	139
15	277	776	580	430	1330	1540	196	339	179
16	254	625	429	398	1110	1190	204	313	172
17	248	632	423	375	999	1010	245	510	337
18	243	523	343	381	1050	1080	258	429	299
19	235	494	313	357	878	846	250	349	233
20	235	572	363	340	1070	982	261	500	352
21	242	635	415	347	999	936	269	509	370
22	256	597	413	369	1060	1060	243	327	215
23	259	526	368	384	1060	1100	240	297	192
24	258	494	344	347	954	894	248	322	216
25	291	651	511	370	1120	1120	251	304	208
26	317	999	855	363	1010	990	248	288	193
27	291	698	548	327	815	720	241	381	248
28	314	1030	873	310	698	584	222	302	181
29	384	1550	1610	296	589	471	222	250	150
30	456	1960	2410	323	1180	1030	225	259	157
31	480	2300	2980	382	1160	1200	—	—	—
TOTAL	9956	--	86686	12061	--	42653	7943	—	10951

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 29960
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR PERIOD (TONS) 140290

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM
MAR.									
16...	0730	1.0	90	1610	391	54	79	95	97
MAY									
06...	1735	7.0	139	7380	2770	47	62	94	99
11...	1600	13.5	118	1660	529	25	34	--	--
JULY									
20...	0620	11.0	634	3850	6590	25	35	73	91
AUG.									
16...	1410	19.0	520	1530	2150	26	39	70	90

DATE	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM	SUS. SED. SIEVE DIAM. % FINER THAN 1.00 MM	SUS. SED. SIEVE DIAM. % FINER THAN 2.00 MM
MAR.								
16...	100	--	--	--	--	--	--	--
MAY								
06...	100	--	--	--	--	--	--	--
11...	--	--	50	56	60	83	95	100
JULY								
20...	98	100	--	--	--	--	--	--
AUG.								
16...	99	100	--	--	--	--	--	--

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	219	257	152	63	260	44	33	147	13
2	220	321	191	63	201	34	33	89	7.9
3	215	296	172	62	134	22	33	97	8.6
4	180	225	109	58	169	26	33	104	9.3
5	149	172	69	43	105	12	33	60	5.3
6	149	200	80	45	73	8.9	33	104	9.3
7	145	194	76	53	79	11	31	150	13
8	139	179	67	58	168	26	30	165	13
9	138	173	64	64	155	27	30	128	10
10	132	179	64	66	185	33	30	84	6.8
11	128	181	63	68	162	30	30	96	7.8
12	114	161	50	59	250	40	30	127	10
13	111	134	40	54	226	33	30	167	14
14	95	133	34	54	205	30	30	153	12
15	93	140	35	52	174	24	29	112	8.8
16	99	145	39	50	135	18	28	97	7.3
17	98	145	38	51	153	21	28	124	9.4
18	96	136	35	48	208	27	29	135	11
19	90	131	32	50	244	33	30	96	7.8
20	86	114	26	49	186	25	31	111	9.3
21	84	127	29	48	158	20	31	107	9.0
22	82	130	29	45	155	19	31	85	7.1
23	80	131	28	27	173	13	30	96	7.8
24	81	122	27	54	249	36	29	95	7.4
25	78	121	25	58	195	31	28	83	6.3
26	77	154	32	48	274	36	27	75	5.5
27	74	164	33	64	342	59	27	80	5.8
28	70	204	39	54	721	105	27	65	4.7
29	65	221	39	50	156	21	27	65	4.7
30	63	181	31	57	154	24	28	106	8.0
31	63	148	25	--	--	--	29	79	6.2
TOTAL	3513	--	1773	1615	--	888.9	928	--	266.1

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	29	65	5.1	21	31	1.8	41	156	17
2	28	86	6.5	21	27	1.5	40	109	12
3	27	105	7.7	21	26	1.5	41	94	10
4	27	65	4.7	20	36	1.9	42	89	10
5	27	66	4.8	20	29	1.6	44	127	15
6	28	96	7.3	21	21	1.2	46	104	13
7	29	77	6.0	22	23	1.4	48	193	25
8	30	99	8.0	24	55	3.6	49	104	14
9	30	85	6.9	27	64	4.7	50	162	22
10	29	63	4.9	30	67	5.4	50	588	79
11	28	71	5.4	31	58	4.9	51	660	91
12	25	70	4.7	32	47	4.1	52	377	53
13	24	76	4.9	32	67	5.8	52	249	35
14	23	78	4.8	33	57	5.1	52	267	37
15	23	68	4.2	34	67	6.2	44	420	50
16	23	70	4.3	35	83	7.8	72	1630	441
17	24	72	4.7	37	111	11	58	1490	290
18	25	56	3.8	41	107	12	53	711	102
19	24	47	3.0	47	111	14	45	513	62
20	24	49	3.2	52	102	14	42	522	59
21	24	65	4.2	45	113	14	36	414	40
22	25	58	3.9	41	125	14	38	360	37
23	24	42	2.7	40	83	9.0	37	369	37
24	24	36	2.3	40	138	15	32	342	30
25	22	32	1.9	41	125	14	35	329	31
26	21	37	2.1	42	111	13	30	387	31
27	19	48	2.5	43	118	14	25	338	23
28	18	35	1.7	44	147	17	43	905	105
29	19	29	1.5	44	137	16	41	555	61
30	20	34	1.8	--	--	--	37	495	49
31	20	36	1.9	--	--	--	39	445	47
TOTAL	763	--	131.4	981	--	235.5	1365	--	1928

06088500 MUDDY CREEK AT VAUGHN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	40	460	50	27	58	4.2	268	1500	1090
2	39	350	37	23	47	2.9	272	1693	1240
3	33	245	22	23	46	2.9	295	1773	1410
4	32	248	21	20	45	2.4	292	2090	1650
5	35	367	35	21	51	2.9	314	2720	2310
6	32	464	40	122	5790	2280	300	1560	1260
7	30	395	32	159	5820	2500	290	1220	955
8	28	171	13	165	2480	1100	270	761	555
9	29	133	10	209	4470	2520	248	1230	824
10	27	79	5.8	159	2240	962	226	1320	805
11	29	78	6.1	118	1020	325	198	1240	663
12	29	88	6.9	119	1080	347	217	761	446
13	30	97	7.9	124	1110	372	230	1170	727
14	29	96	7.5	110	1300	386	236	1120	714
15	27	86	6.3	119	865	278	191	848	437
16	28	100	7.6	115	949	295	191	825	425
17	29	93	7.3	168	1380	626	252	1150	782
18	28	78	5.9	171	1300	600	290	1150	900
19	27	87	6.3	118	676	215	321	1310	1140
20	27	99	7.2	148	1670	667	252	805	548
21	26	75	5.3	184	2130	1060	268	868	628
22	25	106	7.2	166	1070	480	240	783	507
23	25	74	5.0	148	720	288	262	940	665
24	25	88	5.9	161	1250	543	362	1470	1440
25	27	80	5.8	200	1570	848	419	2260	2560
26	27	72	5.2	258	2300	1760	498	3260	4380
27	24	78	5.1	394	5410	5760	478	3040	3920
28	22	91	5.4	284	3090	2370	464	3130	3920
29	23	68	4.2	292	2890	2280	434	2530	2960
30	29	96	7.5	286	2100	1620	401	2080	2250
31	--	--	--	280	1980	1500	--	--	--
TOTAL	861	--	391.4	4891	--	31997.3	8979	--	42111

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	418	2270	2560	350	1180	1120	314	770	653
2	472	2180	2780	427	2140	2470	303	695	569
3	432	2160	2520	546	2270	3350	288	549	427
4	454	2230	2730	462	1740	2170	286	758	585
5	416	1390	1560	428	1610	1860	290	616	482
6	339	1230	1130	428	1520	1760	286	533	412
7	325	1420	1250	434	1540	1800	278	549	412
8	317	1260	1080	421	1580	1800	278	498	374
9	262	1310	927	454	1460	1790	260	517	363
10	323	924	806	427	1540	1780	246	493	325
11	337	1280	1160	394	1360	1450	246	525	349
12	357	1520	1470	450	1540	1870	268	533	386
13	376	1240	1260	458	1480	1830	290	778	609
14	334	966	871	552	2070	3090	258	517	360
15	323	914	799	588	2300	3650	254	514	353
16	346	1070	1000	534	2040	2940	246	502	333
17	385	924	960	554	2280	3410	244	435	287
18	355	1440	1380	556	2520	3780	250	365	246
19	562	3150	4780	538	2880	4180	272	514	377
20	650	3740	6560	500	1870	2520	254	578	396
21	654	3730	6590	456	1380	1700	242	502	328
22	622	4450	7470	419	1610	1820	242	415	271
23	492	2660	3530	439	1540	1830	254	419	287
24	445	2070	2490	441	1410	1680	270	482	351
25	428	2120	2450	432	1310	1530	282	476	362
26	383	2390	2470	419	1430	1620	303	547	448
27	321	2350	2040	407	1590	1750	284	393	301
28	297	1940	1560	373	1310	1320	282	381	290
29	274	765	566	341	1230	1130	274	410	303
30	274	806	596	328	1250	1110	270	277	202
31	353	1220	1160	301	806	655	--	--	--
TOTAL	12326	--	68505	13857	--	64765	8114	--	11441

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 58193
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 224433.6

06089000 SUN RIVER NEAR VAUGHN, MONT.

LOCATION (revised).--Lat 47°31'37", long 111°29'05", in NW¼SE¼SW¼ sec.33, T.21 N., R.2 E., Cascade County, at county bridge 1.8 miles downstream from gaging station, 4.4 miles southeast of Vaughn, 5.5 miles downstream from Muddy Creek, and 7.5 miles northwest of Great Falls.

DRAINAGE AREA.--1,854 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1972.
Water temperatures: October 1968 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 546 mg/l Jan. 12-31; minimum, 156 mg/l June 1-13.
Hardness: Maximum, 350 mg/l Nov. 1-30, Jan. 12-31; minimum, 130 mg/l June 1-13.
Specific conductance: Maximum daily, 903 micromhos Dec. 12; minimum daily, 245 micromhos June 11.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-14	--	788	--	6.6	0	51	33	32	1.7	240	0	130
15-31	--	711	--	5.7	0	54	33	33	1.6	238	0	140
NOV.												
01-30	--	273	--	6.0	0	62	48	54	2.0	283	0	220
DEC.												
01-30	--	199	--	8.2	0	54	44	42	1.7	267	0	200
JAN.												
01-11	--	216	--	8.3	10	58	40	46	1.8	266	0	190
12-31	--	198	--	8.1	10	72	42	49	5.8	310	0	200
FEB.												
01-29	--	288	--	6.4	10	67	40	46	2.3	268	0	200
MAR.												
01-09	--	344	--	5.8	10	59	34	37	2.4	231	0	170
10-31	--	469	--	4.9	40	57	34	41	2.0	238	0	180
APR.												
01-05	--	709	--	6.0	10	49	35	37	1.6	183	0	180
06-30	--	651	--	5.6	10	41	25	22	1.3	169	0	110
MAY												
01-19	--	754	--	5.6	20	54	23	21	1.9	211	0	99
20-31	--	2980	--	6.0	20	42	17	12	1.5	178	0	57
JUNE												
01-13	--	6530	--	6.5	20	34	10	6.0	1.3	144	0	24
14-22	--	1950	--	5.8	20	38	14	11	1.1	158	0	44
23-29	--	1480	--	5.9	20	41	18	17	1.3	179	0	68
JULY												
01-14	--	811	--	4.6	80	48	25	24	1.8	220	0	93
14-30	--	804	--	5.6	20	56	34	33	2.3	255	0	140
AUG.												
01-10	--	824	--	6.9	50	58	35	35	2.3	262	0	140
11-31	--	1010	--	5.8	20	53	30	27	1.9	243	0	120
SEP.												
01-14	--	1010	--	5.8	10	52	27	24	1.7	233	0	99
16-30	--	595	--	5.2	20	56	35	34	1.9	258	0	140
WTD. AVG.	--	--	--	6.1	20	46	23	21	1.7	200	0	92
TIME WTD. AVG.	--	898	--	6.2	16	54	33	34	2.0	237	0	145
TONS PER DAY	--	--	--	15	0	112	56	52	4.0	485	0	224

ANALYSES OF ADDITIONAL SAMPLES

OCT. 06...	1600	849	14.5	4.1	10	55	33	26	1.4	237	0	130
JAN. 17...	1400	230	.5	7.5	70	71	41	42	2.6	307	0	180
MAR. 30...	1030	416	6.5	4.4	10	64	40	46	1.8	253	0	210
JUNE 30...	1300	868	25.0	5.0	20	--	23	24	1.7	227	0	99

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06089000 SUN RIVER NEAR VAUGHN, MONT.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 21.0°C on several days during July and August; minimum, freezing point on many days during December to March.

Period of record:
Dissolved solids: Maximum, 825 mg/l Apr. 29 to May 18, 1970; minimum, 156 mg/l June 1-13, 1972.
Hardness: Maximum, 430 mg/l Apr. 29 to May 18, 1970; minimum, 130 mg/l June 1-16, 1971, June 1-13, 1972.
Specific conductance: Maximum daily, 1,720 micromhos May 1, 1970; minimum daily, 214 micromhos June 8, 1970.
Water temperatures: Maximum observed, 28.0°C Aug. 11, 27, 1969; minimum, freezing point on many days during winter periods.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. The computations of tons per day of dissolved solids refer to flow past the gaging station. Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
OCT.												
01-14	2.4	.5	.35	--	377	.51	802	260	66	.9	613	8.1
15-31	2.7	.4	.37	--	389	.53	747	270	75	.9	623	8.2
NOV.												
01-30	4.5	.6	.00	--	536	.73	395	350	120	1.3	828	8.2
DEC.												
01-30	3.8	.5	.79	--	489	.67	263	320	97	1.0	777	8.2
JAN.												
01-11	4.3	.4	.74	--	483	.66	282	310	91	1.1	735	8.1
12-31	8.1	.4	1.6	--	546	.74	292	350	98	1.1	817	8.3
FEB.												
01-29	4.3	.4	.77	.000	502	.68	390	330	110	1.1	783	8.2
MAR.												
01-09	4.3	.6	.74	.000	430	.58	399	290	98	1.0	677	8.2
10-31	3.6	.5	.39	.000	442	.60	560	280	87	1.1	700	8.2
APR.												
01-05	3.0	.3	.04	.000	402	.55	770	270	120	1.0	645	7.7
06-30	2.0	.3	.01	.000	290	.39	510	210	67	.7	482	7.6
MAY												
01-19	2.8	.3	1.3	.090	317	.43	645	230	56	.6	514	7.8
20-31	2.6	.4	.23	.000	227	.31	1830	170	29	.4	382	7.9
JUNE												
01-13	1.0	.2	.34	.050	156	.21	2750	130	8	.2	276	7.4
14-22	1.0	.2	.01	.000	193	.26	1020	150	23	.4	341	7.6
23-29	1.0	.3	.00	.000	241	.33	963	180	30	.6	404	7.6
JULY												
01-14	2.1	.5	.01	.000	307	.42	672	220	42	.7	521	7.9
16-30	2.7	.5	.13	.000	400	.54	868	280	71	.9	662	7.8
AUG.												
01-10	3.0	.5	.20	.000	410	.56	912	290	74	.9	669	8.1
11-31	2.4	.5	.13	.000	361	.49	984	260	56	.7	586	8.0
SEP.												
01-14	2.0	.4	.07	.000	327	.44	892	240	50	.7	541	8.0
16-30	3.4	.5	.22	.000	404	.55	649	280	72	.9	660	7.8
WTD. AVG.	2.2	.4	.31	--	293	.40	--	211	47	.6	484	7.8
TIME WTD. AVG.	3.3	.4	.43	--	396	.54	--	270	75	.9	634	8.0
TONS PER DAY	5.4	.9	.74	--	711	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
06...	1.8	.3	.22	--	369	.50	846	270	79	.7	593	8.0
JAN.												
17...	3.4	.3	.75	--	502	.68	312	350	94	1.0	789	8.0
MAR.												
30...	3.4	.4	.48	.000	497	.68	558	320	120	1.1	763	8.2
JUNE												
30...	1.2	.4	.17	.000	311	.42	729	200	18	.7	510	8.3

06089000 SUN RIVER NEAR VAUGHN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
06...	1600	849	.040	70	0
NOV.					
01...	1400	270	.080	--	--
29...	1300	264	.060	--	--
JAN.					
17...	1400	230	--	--	40
FEB.					
28...	1545	350	.000	--	--
MAR.					
30...	1030	416	.020	80	10
APR.					
27...	1615	417	.010	--	--
MAY					
27...	1330	2800	.030	--	--
JUNE					
30...	1300	868	.030	80	0
JULY					
25...	1400	876	.040	--	--
SEP.					
07...	1320	937	.020	--	--

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	704	791	803	694	777	851	844	498	286	491	638	527
2	619	873	846	744	752	---	585	492	283	438	694	527
3	560	873	851	771	792	782	579	464	292	---	779	522
4	629	712	871	794	---	743	742	462	---	407	652	522
5	594	887	---	742	---	683	600	463	286	438	638	561
6	600	880	---	842	771	672	508	588	263	509	612	561
7	704	816	825	782	758	677	493	452	264	558	625	561
8	607	840	897	744	752	625	461	---	309	567	625	514
9	675	816	861	758	760	612	461	540	251	594	667	541
10	528	840	895	762	---	694	519	527	247	594	612	---
11	606	822	837	736	792	743	506	513	245	632	---	541
12	612	800	903	784	792	760	421	518	248	631	619	561
13	609	810	895	823	728	726	478	378	287	637	591	---
14	594	781	861	889	801	746	485	602	354	659	690	606
15	592	822	803	863	752	691	---	549	324	---	701	---
16	594	796	844	794	782	699	520	338	367	693	602	606
17	643	772	782	---	825	699	495	602	379	692	526	673
18	688	800	801	863	874	688	446	481	366	675	649	659
19	612	830	782	758	868	659	495	572	311	745	638	659
20	600	857	798	800	---	646	512	400	294	722	638	713
21	609	822	820	880	---	631	482	400	320	651	583	689
22	532	780	844	790	844	667	588	397	364	651	604	673
23	583	772	837	779	763	660	522	332	382	670	587	661
24	583	802	782	816	765	639	564	378	386	---	522	661
25	596	840	838	821	846	---	604	353	390	630	331	633
26	606	781	830	779	786	---	613	387	387	617	600	608
27	520	798	792	816	---	605	595	552	436	646	522	640
28	585	796	792	782	699	675	565	---	387	634	522	640
29	691	820	792	779	874	726	552	370	463	748	522	640
30	846	844	861	800	---	---	475	475	---	684	510	614
31	798	---	---	818	---	887	---	308	---	---	500	---
MONTH	623	816	833	791	789	699	542	462	328	615	607	604
YEAR	641											

06089000 SUN RIVER NEAR VAUGHN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	1.0	1.0	0.0	0.0	0.0	8.5	11.5	---	12.5	20.0	---
2	13.0	2.0	0.5	0.0	0.0	0.5	7.0	11.0	---	13.0	15.5	---
3	12.5	2.5	0.5	0.0	0.0	1.0	5.0	13.0	---	10.0	19.0	---
4	14.0	0.5	1.0	0.0	---	1.0	4.5	11.0	---	14.0	20.0	---
5	15.0	1.0	---	0.0	---	1.0	7.0	9.0	---	13.0	21.0	---
6	15.0	1.5	---	0.0	0.0	1.0	9.5	8.0	---	12.0	21.0	---
7	15.0	2.0	0.5	0.0	0.0	1.0	8.5	8.0	---	16.0	21.0	---
8	13.0	2.5	0.5	0.0	0.0	1.5	10.0	6.0	---	20.0	20.0	---
9	14.0	2.0	0.0	0.0	0.0	2.0	8.5	10.0	13.0	16.0	19.0	---
10	13.5	3.0	0.0	0.0	---	2.0	8.0	10.0	10.0	16.0	20.0	---
11	11.0	---	0.0	0.0	0.0	0.0	7.5	---	12.0	17.0	20.0	---
12	12.5	2.5	0.0	0.0	0.0	3.0	9.0	13.0	10.0	17.0	19.0	---
13	10.0	---	0.0	0.0	0.0	5.0	8.0	---	11.0	16.5	20.0	13.0
14	8.5	4.0	0.0	0.0	0.0	5.5	---	---	10.0	18.5	17.0	15.0
15	7.0	4.0	0.0	0.0	0.0	7.0	---	---	15.0	17.0	20.0	---
16	7.5	4.0	0.0	0.0	0.0	9.0	8.0	---	16.0	16.5	21.0	13.0
17	6.5	1.5	0.0	0.0	0.0	10.0	7.0	---	15.0	17.0	20.0	13.0
18	7.0	1.5	0.0	0.0	0.0	9.5	7.5	---	13.0	16.0	20.0	14.0
19	6.5	1.5	0.0	0.0	0.0	9.5	8.0	---	14.0	13.0	19.0	12.0
20	6.0	2.0	0.0	0.0	0.0	8.0	---	---	13.0	14.0	20.0	10.0
21	7.0	2.0	0.0	0.0	0.0	5.0	11.0	---	12.5	16.0	20.0	13.0
22	8.0	1.5	0.0	0.0	0.0	9.5	9.5	---	13.0	18.0	21.0	12.0
23	8.5	2.0	0.0	0.0	0.0	8.0	10.0	---	15.0	18.5	21.0	9.0
24	8.0	3.0	0.0	0.0	0.0	4.5	8.0	---	13.0	20.0	20.0	8.0
25	5.5	2.0	0.0	0.0	0.0	---	---	---	15.0	21.0	20.0	8.0
26	4.5	2.5	0.0	0.0	0.0	---	10.0	---	14.0	21.0	20.0	9.5
27	2.5	2.0	0.0	0.0	0.0	4.5	10.5	---	14.5	20.0	21.0	7.0
28	1.5	1.5	0.0	0.0	0.0	6.0	11.0	---	14.5	19.0	20.0	7.5
29	1.0	1.5	0.0	0.0	0.0	7.0	8.0	---	14.0	20.0	20.0	8.5
30	1.0	1.0	---	0.0	---	---	8.5	---	---	21.0	19.0	9.0
31	1.5	---	---	0.0	---	10.0	---	---	---	21.0	---	---
MONTH	8.5	2.0	0.0	0.0	0.0	4.5	8.5	---	---	17.0	20.0	---
YEAR	7.5											

06090800 MISSOURI RIVER AT FORT BENTON, MONT.

LOCATION.--Lat 47°49'03", long 110°39'59", in SE¼SE¼ sec.23, T.24 N., R.8 E., Chouteau County, at gaging station at abandoned highway bridge at Fort Benton, 3.8 miles upstream from Shonkin Creek, and at mile 2,073.2.

DRAINAGE AREA.--24,749 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
05...	1320	7620	41	14	17	59	2.8	.2	240	.33	4940
NOV.											
10...	1400	4860	44	14	--	69	7.4	--	290	.39	5370
DEC.											
14...	1500	5820	43	14	--	51	8.5	--	260	.35	4090
JAN.											
11...	1630	7400	40	13	18	44	7.9	.7	248	.34	4960
FEB.											
07...	1400	8000	45	13	--	61	9.2	--	268	.36	5790
MAR.											
09...	0830	10780	44	15	--	69	8.3	--	264	.36	7630
APR.											
05...	1230	7010	49	17	19	69	7.9	.7	334	.45	6320
MAY											
10...	1605	11400	44	14	--	53	7.9	--	332	.45	10200
JUNE											
06...	1630	21500	36	11	--	35	5.4	--	214	.29	12400
JULY											
12...	1730	8040	42	14	19	49	9.0	1.2	236	.32	5120
AUG.											
15...	1530	10400	41	14	17	61	7.2	1.0	256	.35	7190
SEP.											
14...	1035	8040	40	13	17	51	6.9	.8	238	.32	5170

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
05...	1320	7620	.00	.00	.0	.00	.00	.00
JAN.								
11...	1630	7400	.00	.00	.0	.00	.00	.01
APR.								
05...	1230	7010	.00	.00	.0	.00	.00	.00

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVER (UG/L)
OCT.							
05...	.00	.00	.00	.00	.00	.00	.00
JAN.							
11...	.00	.00	.00	.00	.00	.00	.00
APR.							
05...	.00	.00	.00	.00	.00	.00	.00

06090800 MISSOURI RIVER AT FORT BENTON, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1969 to September 1972.

REMARKS.--Flow regulated by reservoirs, power plants and numerous diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
05...	160	.6	.13	.09	--	--	--	--	.15	2.2
NOV.										
10...	170	--	.20	.51	--	--	--	--	.11	1.7
DEC.										
14...	160	--	.08	.09	--	--	--	--	.11	1.2
JAN.										
11...	150	.6	.16	.06	--	--	--	--	.050	1.3
FEB.										
07...	170	--	.28	.07	--	--	--	--	.11	1.4
MAR.										
09...	170	--	.29	.10	--	--	--	--	.12	1.8
APR.										
05...	190	.6	.05	.09	--	--	--	--	.090	1.4
MAY										
10...	170	--	.06	.05	--	--	--	--	.030	2.2
JUNE										
06...	140	--	.02	.11	--	--	--	--	.13	1.2
JULY										
12...	162	.6	.00	--	.36	.36	.010	.030	.080	1.6
AUG.										
19...	160	.6	--	--	--	--	--	--	--	1.8
SEP.										
14...	150	.6	--	--	--	--	--	--	--	1.7

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT.									
05...	1320	13.0	24.5	370	10.8	8.3	--	--	600
NOV.									
10...	1400	4.5	19.0	400	12.8	8.2	--	--	62
DEC.									
14...	1500	.0	2.0	378	14.0	7.7	--	--	4
JAN.									
11...	1630	.5	-6.0	375	12.8	8.0	136	--	150
FEB.									
07...	1400	.0	9.5	390	12.2	7.6	--	--	12
MAR.									
09...	0830	1.0	1.5	400	12.8	7.7	--	--	24
APR.									
05...	1230	7.5	21.0	440	12.8	8.4	153	--	0
MAY									
10...	1605	10.0	14.5	400	11.6	8.3	144	--	1
JUNE									
06...	1630	17.5	33.5	325	8.8	8.2	126	--	480
JULY									
12...	1730	19.0	27.5	388	9.8	8.6	136	7500	220
AUG.									
19...	1530	21.0	24.5	380	8.0	8.4	116	2700	460
SEP.									
14...	1035	14.0	17.5	380	9.6	8.2	112	11000	560

06090800 MISSOURI RIVER AT FORT BENTON, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
05...	1320	7620	0	0	70	0	0	4	.00
JAN.									
11...	1630	7400	8	0	80	1	0	5	.00
APR.									
05...	1230	7010	2	0	80	0	0	3	.00

MARIAS RIVER BASIN

06101500 MARIAS RIVER NEAR CHESTER, MONT.

LOCATION (revised).--Lat 48°18'21", long 111°04'44", in SW¼SW¼ sec.34, T.30 N., R.5 E., Liberty County, at Tiber Dam outlet, 1.7 miles upstream from gaging station, 6 miles upstream from Pondera Coulee, and 15 miles southwest of Chester.

DRAINAGE AREA.--4,927 sq mi upstream from gaging station, of which 518 sq mi is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1964 to September 1972 (discontinued).
Water temperatures: October 1964 to September 1972 (discontinued).

EXTREMES.--1971-72:
Dissolved solids: Maximum, 376 mg/l Jan. 1-31; minimum, 235 mg/l Aug. 1-31.
Hardness: Maximum, 240 mg/l Jan. 1-31, Feb. 1-29; minimum, 160 mg/l Aug. 1-31, Sept. 1-30.
Specific conductance: Maximum daily, 598 micromhos Mar. 3; minimum daily, 388 micromhos Aug. 17, 18, 21.
Water temperatures: Maximum, 22.0°C Aug. 20; minimum, 1.5°C on several days during January and February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	500	--	3.5	0	45	18	23	1.6	163	0	100
NOV.												
01-30	--	497	--	3.7	0	44	19	24	1.7	162	0	110
DEC.												
01-31	--	390	--	3.6	0	47	20	22	1.4	171	0	120
JAN.												
01-31	--	311	--	3.5	10	57	24	33	1.7	207	0	150
FEB.												
01-29	--	294	--	2.9	10	56	25	33	1.6	191	6	150
MAR.												
01-31	--	1070	--	3.3	10	53	22	28	1.7	193	0	130
APR.												
01-30	--	2110	--	3.5	20	47	20	25	1.9	178	0	110
MAY												
01-31	--	2180	--	3.6	--	49	21	28	2.1	174	0	120
JUNE												
01-30	--	2450	--	3.3	10	43	18	24	1.8	156	0	110
JULY												
01-31	--	1530	--	2.1	10	40	16	19	1.6	142	0	87
AUG.												
01-31	--	1550	--	1.6	10	39	15	19	1.4	143	0	86
SEP.												
01-30	--	1540	--	2.1	20	39	16	20	1.8	146	0	93
WTD. AVG.	--	--	--	3.0	12	45	19	24	1.8	163	0	108
TIME WTD. AVG.	--	1200	--	3.1	9	47	19	25	1.7	169	0	114
TONS PER DAY	--	--	--	9.6	0	146	61	77	5.7	530	0	350
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	1230	505	14.5	3.7	10	45	18	21	1.2	160	0	110
JAN.												
06...	0930	308	2.0	2.9	0	54	24	31	1.8	196	0	140
APR.												
26...	0950	2060	6.5	3.5	110	48	20	26	2.3	163	0	130
JUNE												
29...	1140	1770	20.0	2.0	20	41	16	21	1.7	167	0	94
SEP.												
12...	1545	1550	14.5	1.9	10	40	16	19	1.6	146	0	86

06090800 MISSOURI RIVER AT FORT BENTON, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.								
05...	3	30	.2	2	0	2	0	40
JAN.								
11...	7	10	.2	0	5	1	1	30
APR.								
05...	3	0	.3	0	4	0	2	30

MARIAS RIVER BASIN

06101500 MARIAS RIVER NEAR CHESTER, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 511 mg/l Apr. 21-30, 1965; minimum, 235 mg/l Aug. 1-31, 1972.
Hardness: Maximum, 296 mg/l Feb. 1-28, 1967; minimum, 160 mg/l Aug. 1-31, Sept. 1-30, 1972.
Specific conductance: Maximum daily, 752 micromhos Apr. 29, 1965, Apr. 22, 23, 1970; minimum daily, 388 micromhos Aug. 17, 18, 21, 1972.
Water temperatures: Maximum, 22.0°C Aug. 20, 1972; minimum, 1.5°C on several days during 1972.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Flow completely regulated by Tiber Reservoir.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	3.2	.2	.02	--	275	.37	371	190	53	.7	456	8.1
NOV.												
01-30	2.6	.3	.00	--	285	.39	382	190	55	.8	463	8.2
DEC.												
01-31	3.0	.2	.01	--	301	.41	317	200	59	.7	488	8.3
JAN.												
01-31	4.1	.2	.06	--	376	.51	316	240	71	.9	578	8.3
FEB.												
01-29	3.7	.3	.04	.000	373	.51	296	240	76	.9	587	8.4
MAR.												
01-31	3.0	.3	.07	.010	337	.46	974	220	65	.8	533	8.3
APR.												
01-30	2.1	.3	.42	.000	299	.41	1700	200	54	.8	498	8.1
MAY												
01-31	3.2	.3	.13	.000	314	.43	1850	210	66	.8	506	8.0
JUNE												
01-30	2.0	.5	.02	.000	279	.38	1850	180	53	.8	462	6.9
JULY												
01-31	2.1	.3	.01	.000	238	.32	983	170	49	.6	408	7.8
AUG.												
01-31	2.0	.3	.00	.000	235	.32	983	160	42	.7	404	7.9
SEP.												
01-30	2.6	.2	.00	.000	247	.34	1030	160	43	.7	409	8.1
WTD. AVG.	2.5	.3	.09	--	284	.39	--	189	54	.8	467	7.9
TIME WTD. AVG.	2.8	.3	.07	--	296	.40	--	197	57	.8	482	8.0
TONS PER DAY	8.2	1.0	.30	--	921	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	2.7	.2	.20	--	281	.38	383	190	55	.7	452	8.2
JAN.												
06...	3.5	.4	.09	--	354	.48	294	230	73	.9	575	8.2
APR.												
26...	3.4	.2	.18	.000	315	.43	1750	200	68	.8	497	8.0
JUNE												
29...	1.9	.2	.06	.000	260	.35	1240	170	31	.7	415	8.5
SEP.												
12...	1.6	.3	.01	.000	238	.32	1030	170	46	.6	400	8.1

06101500 MARIAS RIVER NEAR CHESTER, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
07...	1230	505	.070	20	10
NOV.					
03...	1320	509	.070	--	--
DEC.					
01...	0930	488	.070	--	--
JAN.					
06...	0930	308	--	--	8
MAR.					
02...	1030	299	.020	--	--
APR.					
26...	0950	2060	.020	50	0
JUNE					
29...	1140	1770	.020	40	0
AUG.					
01...	1720	1480	.010	--	--
SEP.					
12...	1545	1550	.020	100	0

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	448	451	461	546	585	591	513	500	496	411	399	403
2	446	456	461	557	595	590	498	498	495	410	396	403
3	448	456	465	558	590	598	507	494	481	405	396	403
4	446	457	465	560	573	594	498	497	486	405	396	403
5	446	458	461	564	585	588	513	497	486	407	395	403
6	448	453	461	570	596	590	488	500	485	404	395	403
7	451	456	463	571	595	594	480	497	476	406	392	403
8	449	456	468	575	590	586	480	498	474	403	392	403
9	446	457	467	570	590	591	476	499	475	402	392	403
10	447	458	469	568	590	587	485	499	475	401	392	403
11	441	460	468	569	594	583	488	501	475	400	391	403
12	448	457	465	580	596	590	491	502	466	400	393	403
13	451	463	469	583	597	588	488	500	456	400	392	403
14	446	457	467	580	584	583	491	500	451	401	392	403
15	448	457	467	580	585	576	490	501	446	400	389	403
16	447	458	470	580	585	583	492	502	448	399	389	395
17	448	458	467	580	590	576	492	501	430	399	388	403
18	448	458	465	580	590	576	490	502	425	400	388	403
19	455	458	469	580	590	577	493	504	424	401	392	403
20	454	457	469	580	596	565	492	504	426	403	392	403
21	455	458	476	580	592	542	492	504	424	399	388	403
22	462	458	492	586	587	517	492	505	422	399	391	403
23	455	458	503	592	590	514	493	503	422	403	392	403
24	458	463	511	580	585	526	492	503	419	406	392	411
25	462	460	512	586	590	528	500	503	412	404	399	411
26	462	464	530	586	590	502	499	505	412	401	399	411
27	458	463	535	591	594	523	493	506	411	401	396	423
28	458	460	538	592	590	512	492	504	411	401	396	423
29	462	460	540	591	590	520	493	502	411	401	391	423
30	458	458	541	593	---	517	496	501	411	400	399	423
31	462	---	548	592	---	509	---	502	---	397	399	---
MONTH	452	458	485	577	590	562	493	501	448	402	393	406
YEAR	480											

06101500 MARIAS RIVER NEAR CHESTER, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	9.0	5.0	2.5	2.0	2.0	4.0	5.5	10.0	17.0	19.5	20.0
2	13.0	9.0	5.0	2.5	1.5	2.0	4.0	5.5	10.0	17.0	19.0	19.0
3	13.0	9.0	5.0	2.5	1.5	2.0	4.0	6.0	11.0	17.0	18.5	19.0
4	13.0	9.0	5.0	2.5	1.5	2.0	4.0	6.0	12.0	17.0	18.5	18.5
5	13.5	9.0	5.0	2.5	1.5	2.5	4.0	6.0	13.0	16.5	19.5	18.5
6	13.5	8.0	5.0	2.5	1.5	3.0	4.0	6.0	13.0	16.5	19.0	18.5
7	13.5	8.0	4.0	2.5	2.0	2.5	4.0	6.0	13.0	16.5	20.5	18.0
8	13.5	8.0	4.0	2.5	2.0	2.5	4.0	6.0	13.0	16.5	19.5	18.0
9	13.5	8.0	4.0	2.5	2.0	2.5	4.0	6.5	13.0	17.5	19.0	18.0
10	13.5	8.0	4.0	2.5	2.0	3.0	4.0	6.5	13.5	17.0	20.0	17.0
11	13.5	8.0	4.0	2.5	2.0	3.0	4.0	6.5	13.5	17.0	20.5	17.0
12	13.5	8.0	3.5	2.5	2.0	3.0	4.0	7.0	14.0	17.5	21.0	17.0
13	13.5	8.0	3.0	2.5	2.0	3.5	4.0	8.0	14.0	18.0	20.0	17.0
14	13.0	8.0	3.0	1.5	2.5	3.5	4.0	8.0	14.0	17.5	20.5	16.5
15	13.0	8.0	3.0	1.5	2.5	4.0	4.0	9.0	14.0	18.0	20.0	16.5
16	12.0	8.0	3.0	2.0	3.0	4.0	4.0	9.0	14.0	17.0	20.5	16.5
17	12.0	8.0	3.0	2.5	3.0	4.0	4.0	9.0	17.5	17.0	21.0	16.5
18	12.0	7.0	3.0	2.0	3.0	4.0	4.0	9.0	17.0	17.0	21.0	16.0
19	12.0	7.0	3.0	2.0	3.0	4.0	4.5	9.0	16.0	16.0	21.5	16.0
20	12.0	7.0	3.0	2.0	3.0	4.0	4.5	9.0	16.5	16.5	22.0	16.0
21	12.0	7.0	3.0	2.0	2.5	4.0	4.5	9.0	16.5	16.0	20.5	15.0
22	12.0	7.0	3.0	2.0	2.5	4.0	5.0	9.0	17.0	16.5	20.0	14.5
23	12.0	7.0	3.0	2.0	2.0	4.0	5.0	9.0	17.0	17.0	20.0	14.5
24	12.0	7.0	3.0	2.0	2.0	4.0	5.0	9.0	16.5	17.0	20.0	13.5
25	11.5	7.0	3.0	2.0	2.5	4.0	5.0	10.0	16.5	17.5	20.0	13.0
26	11.0	6.5	3.0	2.0	2.5	4.0	5.0	10.0	16.5	18.0	20.0	13.0
27	10.5	6.5	3.0	1.5	2.0	4.0	5.5	10.0	17.0	18.0	20.0	13.0
28	10.0	6.5	2.5	1.5	2.0	4.0	5.5	10.0	17.0	19.0	20.0	13.0
29	9.0	6.5	2.5	2.0	2.0	4.0	5.5	10.0	17.0	19.0	21.0	13.0
30	9.0	6.0	2.5	2.0	---	4.0	5.5	10.0	17.0	18.0	21.0	13.0
31	9.0	---	2.5	2.0	---	4.0	---	10.0	---	18.0	20.0	---
MONTH	12.0	7.5	3.5	2.0	2.0	3.5	4.5	8.0	14.5	17.0	20.0	16.0
YEAR	9.5											

06115200 MISSOURI RIVER NEAR LANDUSKY, MONT.

LOCATION.--Lat 47°37'51", long 108°41'13", in NW¼NE¼ sec.31, T.22 N., R.24 E., Fergus County, Fort Peck Game Range, at gaging station on right bank 380 ft upstream from bridge on U.S. Highway 191, 0.9 mile upstream from Armells Creek, 20 miles south of Landusky, and at mile 1,921.61.

DRAINAGE AREA.--40,987 sq mi.

PERIOD OF RECORD.--Sediment records: October 1971 to September 1972.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	7980	79	1700	7140	65	1250	7500	49	992
2	8140	82	1800	7700	51	1060	7500	50	1010
3	7940	85	1820	7780	58	1220	7640	46	949
4	8140	87	1910	7780	57	1200	7700	30	624
5	8480	88	2010	7380	49	976	7600	20	410
6	8860	83	1990	7420	50	1000	7400	16	320
7	8240	76	1690	7400	54	1080	7300	15	296
8	7840	74	1570	7500	61	1240	7200	15	292
9	7880	74	1570	7940	56	1200	7500	14	284
10	7880	75	1600	6900	32	596	7200	14	272
11	7660	77	1590	7360	48	954	6800	14	257
12	7900	80	1710	7900	61	1300	6600	15	267
13	8160	85	1870	8000	61	1320	6900	15	279
14	8240	91	2020	7560	56	1140	7300	17	335
15	7920	91	1950	7440	58	1170	7200	20	389
16	8180	100	2210	8360	70	1580	7000	27	510
17	8180	104	2300	7480	66	1330	8300	20	448
18	8260	106	2360	8080	62	1350	8200	13	288
19	8420	107	2430	8140	62	1360	8200	11	244
20	8520	105	2420	8080	63	1370	8200	10	221
21	8320	97	2180	7360	57	1130	8100	10	219
22	7520	84	1710	7100	45	863	8000	10	216
23	6980	65	1220	7260	37	725	7900	10	213
24	7180	59	1140	7520	38	772	7700	10	208
25	8000	69	1490	7400	40	799	7500	9	182
26	8560	74	1710	7400	41	819	7000	5	95
27	8620	74	1720	7500	43	871	6100	5	82
28	8560	71	1640	7540	44	896	6400	5	86
29	8480	66	1510	7660	45	931	6700	5	90
30	7960	61	1310	7880	47	1000	6600	5	89
31	7520	63	1280	--	--	--	6800	5	92
TOTAL	250520	--	55430	227960	--	32502	228040	--	10259

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6900	5	93	7200	22	428	8200	35	775
2	7000	8	151	7100	21	403	8200	34	753
3	6900	14	261	7300	18	355	8200	30	664
4	6700	17	308	7500	15	304	8400	25	567
5	7000	14	265	7400	13	260	8600	28	650
6	7500	10	203	7300	11	217	8900	50	1200
7	7600	8	164	7500	11	223	8800	525	12500
8	7800	8	168	7600	12	246	9000	1530	37200
9	8000	9	194	7800	12	253	9400	1870	47500
10	8100	11	241	8000	12	259	9900	1980	52900
11	8000	14	302	8200	13	288	13000	2340	82100
12	7800	14	295	8500	15	344	12000	2830	91700
13	7600	9	185	8700	15	352	15000	2850	115000
14	7200	6	117	9000	14	340	17000	2920	134000
15	7000	5	95	9100	15	369	19000	3100	159000
16	7600	5	103	9600	16	415	21000	3320	188000
17	8000	6	130	9800	18	476	19000	3590	184000
18	7800	9	190	9700	31	812	16800	3640	165000
19	7700	15	312	9600	93	2410	12600	1710	58200
20	7500	24	486	9800	100	2650	12300	1100	36500
21	7500	19	385	10000	66	1780	12000	840	27200
22	7500	15	304	9800	47	1240	12000	660	21400
23	7400	14	280	9200	38	944	11800	500	15900
24	7400	14	280	9000	33	802	12200	493	16100
25	7200	15	292	8800	30	713	12000	526	17000
26	7200	16	311	8500	27	620	12200	528	17400
27	7100	16	307	8400	25	567	10900	544	16000
28	7000	10	189	8300	27	605	11200	606	18300
29	7200	7	136	8300	32	717	11300	539	16400
30	7400	17	340	--	--	--	11000	472	14000
31	7300	23	453	--	--	--	11100	630	18900
TOTAL	229900	--	7540	247000	--	19392	373000	--	1566809

06115200 MISSOURI RIVER NEAR LANDUSKY, MONT.--Continued

EXTREMES.--1971-72:
Sediment concentrations: Maximum daily, 5,120 mg/l July 25; minimum daily, 5 mg/l on several days during December and January.
Sediment discharge: Maximum daily, 188,000 tons Mar. 16; minimum daily, 82 tons Dec. 27.

REMARKS.--Prior to July 1972, sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice Dec. 4 to Mar. 17. Flow partially regulated by reservoirs.

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	10900	1110	32700	12900	605	21100	21100	522	29700
2	11500	980	30400	13300	450	16200	22700	610	37400
3	11000	690	20500	13900	259	9720	25500	733	50500
4	11000	460	13700	13900	180	6760	27200	988	72600
5	11300	254	7750	13700	168	6210	27700	921	68900
6	10900	255	7500	13500	175	6380	26300	640	45400
7	11000	291	8640	13300	178	6390	25600	481	33200
8	10700	259	7480	13500	163	5940	26500	502	35900
9	10800	212	6180	14000	105	3970	29500	739	58900
10	11100	248	7430	15100	137	5590	25000	1290	87100
11	12200	325	10700	15400	240	9980	26100	1250	88100
12	12500	339	11400	15300	272	11200	26400	872	62200
13	13000	311	10900	15100	275	11200	26400	1060	75600
14	15400	475	19800	14900	256	10300	24900	1160	78000
15	15400	586	24400	14600	224	8830	22200	855	51200
16	14500	487	19100	14500	196	7670	19900	576	30900
17	14600	371	14600	14600	197	7770	17200	481	22300
18	14400	304	11800	15300	630	26000	14800	405	16200
19	13900	254	9530	16300	1620	71300	13100	379	13400
20	13200	210	7480	17400	1850	86900	12200	375	12400
21	12400	180	6030	18900	1820	92900	13000	332	11700
22	13100	179	6330	19100	1720	88700	13700	327	12100
23	13300	201	7220	18900	822	41900	13300	352	12600
24	13200	221	7880	19400	580	30400	13600	335	12300
25	12800	215	7430	19500	600	31600	13800	290	10800
26	12600	171	5820	19300	620	32300	15200	273	11200
27	12600	142	4830	19900	650	34900	15900	269	11500
28	12400	226	7570	20300	532	29200	16500	279	12400
29	12600	507	17200	20300	514	28200	17000	307	14100
30	13000	609	21400	19800	473	25300	17200	332	15400
31	--	--	--	19800	472	25200	--	--	--
TOTAL	377300	--	373700	505700	--	800010	609500	--	1094000

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	16900	300	13700	9000	202	4910	8260	115	2560
2	16500	265	11800	9380	188	4760	8120	115	2520
3	16300	244	10700	9930	181	4850	8140	115	2530
4	15600	226	9520	9700	188	4920	8340	117	2630
5	15500	196	8200	10700	273	7890	8360	118	2660
6	14900	142	5710	10500	237	6720	8040	108	2340
7	13200	131	4670	9680	215	5620	8200	117	2590
8	11600	159	4980	9800	208	5500	8180	149	3290
9	10900	143	4210	9880	202	5390	7960	168	3610
10	10500	94	2660	9880	142	3790	8160	172	3790
11	10100	63	1720	9750	145	3820	8900	172	4130
12	9300	63	1580	9530	162	4170	8920	168	4050
13	9380	81	2050	9600	180	4670	9350	153	3860
14	9140	100	2470	9900	200	5350	9650	132	3440
15	9120	104	2560	10700	215	6210	9530	120	3090
16	9380	89	2250	10300	225	6260	9580	112	2900
17	8960	113	2730	11200	232	7020	9650	108	2810
18	9080	1460	35800	10900	215	6330	9350	107	2700
19	10300	4710	131000	10800	227	6620	9080	108	2650
20	10100	1620	44200	10600	241	6900	9330	112	2820
21	9800	600	15900	10400	184	5170	9100	117	2870
22	10400	415	11700	9330	152	3830	9200	115	2860
23	10400	300	8420	9880	177	4720	9200	108	2680
24	10800	495	14400	11000	245	7280	9450	98	2500
25	12400	5120	171000	9980	183	4930	9020	87	2120
26	10600	2750	78700	8820	137	3260	8820	78	1860
27	10400	898	25200	8240	139	3090	8780	75	1780
28	9580	372	9620	8660	162	3790	8860	73	1750
29	9120	236	5810	8960	153	3700	9060	73	1790
30	9080	215	5270	8840	131	3130	9230	74	1840
31	9250	213	5320	8480	119	2720	--	--	--
TOTAL	348590	--	653850	304320	--	157320	265820	--	83020

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 3967650
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 4853832

06115200 MISSOURI RIVER NEAR LANDUSKY, MONT.--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
OCT.									
06...	1845	15.0	8760	80	1890	47	56	100	--
NOV.									
18...	1615	4.0	8100	62	1360	45	51	96	100
MAR.									
18...	1415	4.0	16800	4130	187000	89	97	100	--
APR.									
05...	1615	--	11300	246	7510	58	81	100	--
23...	1815	10.5	13400	207	7490	55	78	99	100
MAY									
03...	1715	13.5	14000	223	8430	51	72	97	100
11...	1645	12.0	15400	253	10500	62	84	100	--
22...	1800	15.0	18800	1720	87300	85	95	100	--
28...	1115	11.5	20200	526	28700	64	85	100	--
JUNE									
03...	1415	18.5	25100	713	48300	64	87	99	100
07...	1715	20.0	25500	497	34200	71	89	100	--
11...	1115	20.0	26700	1280	92300	78	96	100	--
15...	1815	18.5	21700	700	41000	75	96	100	--
23...	1915	18.0	13000	361	12700	62	90	100	--
27...	1830	19.0	15900	269	11500	50	85	100	--
AUG.									
09...	1340	24.0	10000	208	5620	51	79	99	100
SEP.									
06...	1630	17.0	7920	103	2200	50	73	100	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM
JULY										
12...	1830	21.0	9300	2	5	29	97	100	--	--
AUG.										
09...	1340	24.0	10000	2	3	18	94	99	100	--
SEP.										
06...	1630	17.0	7920	5	11	76	98	98	99	100

06140500 MILK RIVER AT HAVRE, MONT.

LOCATION.--Lat 48°33'23", long 109°40'14", in NE¼SE¼SE¼ sec.5, T.32 N., R.16 E., Hill County, at gaging station at highway bridge on 7th Avenue East in Havre, 30 ft downstream from Bullhook Creek, 9.4 miles downstream from Big Sandy Creek, and 17 miles downstream from Fresno Dam.

DRAINAGE AREA.--5,844 sq mi, of which 670 sq mi is probably noncontributing.

PERIOD OF RECORD.--Chemical analyses: August 1964 to September 1972 (discontinued).
Water temperatures: October 1964 to September 1972 (discontinued).

EXTREMES.--1971-72:
Dissolved solids: Maximum, 451 mg/l Mar. 1-19; minimum, 140 mg/l Oct. 1-26.
Hardness: Maximum, 170 mg/l Mar. 1-19; minimum, 96 mg/l Oct. 1-26.
Specific conductance: Maximum daily, 460 micromhos Feb. 7; minimum daily, 233 micromhos Oct. 1.
Water temperatures: Maximum, 24.0°C Aug. 15, 27, 28; minimum, freezing point on many days during December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-26	--	183	--	2.6	0	23	9.5	14	1.5	124	0	25
27-31	--	66	--	3.0	0	28	12	34	1.7	155	0	59
NOV.												
01-30	--	60	--	3.0	0	28	13	36	1.7	164	0	65
DEC.												
01-31	--	50	--	3.7	10	34	14	37	1.5	185	0	76
JAN.												
01-31	--	46	--	3.9	10	34	14	31	1.6	190	0	62
FEB.												
01-29	--	50	--	4.8	10	30	13	41	2.9	176	0	67
MAY												
01-31	--	867	--	5.1	10	30	13	33	2.7	173	0	51
JUNE												
01-30	--	1030	--	5.1	20	31	13	22	2.5	173	0	46
JULY												
01-31	--	990	--	5.0	10	32	12	18	2.1	159	0	32
AUG.												
01-31	--	758	--	4.3	30	26	9.8	13	1.7	136	0	23
SEP.												
01-30	--	599	--	4.2	20	26	9.7	14	1.9	141	0	23
WTD. AVG.	--	--	--	4.7	16	29	12	21	2.2	158	0	37
TIME WTD. AVG.	--	463	--	4.2	12	29	12	26	2.0	163	0	47
TONS PER DAY	--	--	--	5.9	0	37	15	26	2.7	198	0	47
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	0815	161	12.0	2.9	10	23	9.6	11	1.0	124	0	23
JAN.												
05...	1615	46	.0	3.6	20	35	15	32	1.6	191	0	46
APR.												
04...	1715	54	6.0	5.2	10	40	20	89	3.8	236	0	160
JUNE												
18...	1745	1560	18.0	4.7	50	30	13	30	3.0	192	0	44
SEP.												
12...	1930	648	14.5	4.3	20	24	9.9	13	1.6	133	0	23

06140500 MILK RIVER AT HAVRE, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 486 mg/l Jan. 1-10, 1966; minimum, 140 mg/l Oct. 1-26, 1972.
Hardness: Maximum, 254 mg/l Jan. 1-10, 1966; minimum, 79 mg/l Feb. 14-20, 1971.
Specific conductance: Maximum daily, 795 micromhos Jan. 4, 28, 1966; minimum daily, 208 micromhos Feb. 16, 1971.
Water temperatures: Maximum observed, 25.5°C on several days during 1965-67; minimum, freezing point on many days during winter periods.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Dissolved solids, 456 mg/l Apr. 4; hardness, 180 mg/l Apr. 4. Minimum observed during water year: Dissolved solids, 135 mg/l Oct. 7; hardness, 77 mg/l June 18. Chemical and temperature data for March and April are erroneous and are not published. Flow regulated by Fresno Reservoir and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-26	3.2	.1	.06	--	140	.19	69.2	96	0	.6	251	8.1
27-31	8.4	.1	.05	--	223	.30	39.7	120	0	1.4	389	8.1
NOV.												
01-30	8.4	.2	.00	--	236	.32	38.2	120	0	1.4	401	8.1
DEC.												
01-31	7.2	.1	.11	--	265	.36	35.8	140	0	1.3	388	8.3
JAN.												
01-31	3.8	.1	.07	.000	244	.33	30.3	140	0	1.1	399	8.2
FEB.												
01-29	6.6	.2	.05	.000	252	.34	34.0	130	0	1.6	421	8.1
MAY												
01-31	3.0	.2	.08	.000	223	.30	522	130	0	1.3	384	7.4
JUNE												
01-30	1.8	.3	.04	.000	207	.28	576	130	0	.8	351	7.9
JULY												
01-31	1.6	.2	.00	.000	181	.25	484	130	0	.7	308	7.9
AUG.												
01-31	1.2	.2	.00	.000	146	.20	299	110	0	.6	257	7.5
SEP.												
01-30	1.5	.2	.06	.000	150	.20	243	100	0	.6	263	8.1
WTD. AVG.	2.1	.2	.04	--	187	.25	--	122	0	.8	320	7.8
TIME WTD. AVG.	3.9	.2	.05	--	206	.28	--	123	0	1.0	344	8.0
TONS PER DAY	2.7	.3	.05	--	233	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
07...	2.1	.1	.22	--	135	.18	58.7	97	0	.5	244	7.8
JAN.												
05...	4.3	.2	.16	--	232	.32	28.8	150	0	1.1	416	8.0
APR.												
04...	21	.1	.15	.000	456	.62	66.5	180	0	2.9	734	8.1
JUNE												
18...	1.1	.1	.28	.020	201	.27	847	77	0	1.2	371	7.8
SEP.												
12...	.7	.2	.10	.000	143	.19	258	100	0	.6	251	8.0

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06140500 MILK RIVER AT HAVRE, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233	387	393	411	414	---	---	377	351	376	289	265
2	236	376	391	413	406	---	---	368	353	333	289	256
3	238	355	391	417	414	---	---	384	353	333	263	256
4	254	355	397	414	414	---	---	386	352	322	263	250
5	246	354	393	414	414	---	---	385	351	325	259	250
6	254	359	401	414	458	---	---	386	352	325	259	250
7	254	365	393	417	460	---	---	386	352	325	259	250
8	246	417	390	413	447	---	---	386	352	325	259	250
9	254	418	390	403	444	---	---	385	350	327	259	250
10	254	418	388	400	439	---	---	384	351	327	259	250
11	246	409	385	397	443	---	---	383	352	313	257	250
12	252	401	387	403	404	---	---	384	349	313	263	250
13	254	406	393	408	404	---	---	384	351	313	263	250
14	246	401	395	400	441	---	---	369	350	313	271	250
15	240	396	396	397	442	---	---	385	350	313	263	256
16	252	396	390	397	425	---	---	369	337	313	263	256
17	258	418	390	397	426	---	---	370	333	313	259	256
18	252	418	391	397	437	---	---	369	337	313	259	256
19	246	382	397	402	450	---	---	369	336	313	263	256
20	246	387	396	398	437	---	---	367	335	313	259	300
21	246	386	397	397	431	---	---	370	337	313	257	272
22	254	387	397	405	389	---	---	370	337	312	263	286
23	252	387	397	403	389	---	---	368	335	290	259	274
24	254	387	401	408	398	---	---	369	338	290	259	274
25	267	413	407	408	404	---	---	370	338	290	257	250
26	260	418	410	405	404	---	---	388	338	290	257	267
27	384	413	407	405	398	---	---	383	338	295	257	260
28	398	417	402	404	405	---	---	385	338	290	257	260
29	379	418	400	403	408	---	---	393	336	290	257	256
30	379	418	401	404	---	---	---	393	337	290	257	290
31	381	---	401	408	---	---	---	391	---	290	257	---
MONTH	271	395	396	405	422	---	---	379	344	313	262	259
YEAR	344											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
07...	0815	161	.040	40	10
NOV.					
03...	0845	60	.070	--	--
30...	1605	66	.070	--	--
JAN.					
05...	1615	46	.010	50	25
MAR.					
01...	1730	46	.010	--	--
APR.					
04...	1715	54	.020	120	30
25...	1730	404	.070	--	--
JUNE					
18...	1745	1560	.060	60	2
AUG.					
02...	0920	921	.010	--	--
SEP.					
12...	1930	648	.010	20	0

06140500 MILK RIVER AT HAVRE, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	1.5	1.5	0.5	0.0	---	---	10.0	15.0	17.0	21.5	20.0
2	10.0	1.5	1.5	0.0	0.0	---	---	10.0	15.0	17.0	21.0	20.0
3	10.0	1.5	1.5	0.0	0.0	---	---	11.0	15.0	18.0	20.5	20.0
4	11.0	1.5	1.0	0.0	0.0	---	---	10.0	16.0	18.0	21.0	20.0
5	12.0	1.5	1.0	0.0	0.0	---	---	10.0	16.5	18.5	21.0	19.0
6	12.0	1.5	1.0	0.0	0.5	---	---	9.0	16.5	19.0	21.0	19.0
7	12.5	1.0	0.5	0.0	0.0	---	---	9.5	17.0	19.0	21.5	18.0
8	12.5	1.0	0.5	0.0	0.0	---	---	9.5	17.0	19.0	22.0	18.0
9	12.5	1.0	0.0	0.0	0.0	---	---	10.0	17.0	19.0	22.0	17.0
10	12.0	1.5	0.0	0.0	0.0	---	---	10.0	17.0	19.0	22.5	16.5
11	12.0	2.0	0.0	0.0	0.0	---	---	10.0	16.5	19.0	23.0	17.0
12	12.0	2.0	0.0	0.0	0.5	---	---	10.0	16.5	19.0	23.0	17.0
13	10.0	2.0	0.0	0.0	0.5	---	---	11.0	16.0	19.0	23.0	16.0
14	10.0	1.5	0.5	0.0	0.0	---	---	10.0	16.0	19.0	23.0	16.0
15	9.0	1.0	0.0	0.5	0.0	---	---	11.0	16.5	19.0	24.0	14.5
16	5.0	2.0	0.0	0.5	0.0	---	---	12.0	17.0	18.0	23.0	15.0
17	7.5	2.0	0.0	1.0	2.0	---	---	12.5	17.0	18.0	23.5	15.0
18	8.0	3.0	0.0	0.0	3.0	---	---	12.5	17.0	18.0	22.5	17.0
19	8.0	3.0	0.0	0.0	2.0	---	---	12.5	16.5	19.0	22.5	14.5
20	8.0	3.0	0.0	0.0	2.0	---	---	12.0	16.0	18.0	22.0	14.0
21	8.5	3.0	0.0	0.0	1.0	---	---	11.5	16.0	18.0	22.5	13.5
22	8.5	2.5	0.0	0.0	1.0	---	---	11.0	16.0	19.0	22.0	13.0
23	8.0	2.0	0.0	0.5	0.5	---	---	11.5	15.5	21.0	21.0	11.0
24	7.0	2.0	0.0	1.5	2.0	---	---	11.5	15.5	20.0	21.5	10.0
25	7.0	2.0	0.0	0.5	2.0	---	---	11.5	15.5	20.0	22.5	10.5
26	5.0	1.5	0.0	0.0	0.5	---	---	11.0	16.0	20.0	23.0	10.5
27	3.0	0.5	0.0	0.0	0.5	---	---	11.0	15.5	21.5	24.0	8.0
28	3.0	0.5	0.0	0.0	0.0	---	---	12.0	16.0	22.0	24.0	8.0
29	3.0	0.5	0.0	0.0	0.0	---	---	12.0	16.0	23.0	23.5	9.0
30	1.5	1.0	0.0	1.5	---	---	---	12.0	15.5	22.0	23.0	11.0
31	1.5	---	0.0	1.5	---	---	---	12.5	---	22.0	22.0	---
MONTH	8.5	1.5	0.5	0.5	0.5	---	---	11.0	16.0	19.5	22.5	15.0
YEAR	9.5											

06149500 BATTLE CREEK AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 49°00'08", long 109°25'20", in SE¼ sec.4, T.1, R.26 W., third meridian, at gaging station 600 ft north of international boundary in Saskatchewan, 8 miles upstream from Woodpile Coulee, and 30 miles north of Chinook, Mont.

DRAINAGE AREA.--931 sq mi.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
APR., 1972											
04...	1130	27	1.0	10	10	42	18	28	4.9	202	0
JUNE											
07...	1130	14	23.0	1.5	40	27	38	69	8.1	234	0
SEP.											
13...	1130	.10	12.0	.3	50	25	40	94	12	119	26

DATE	TIME	DIS-CHARGE (CFS)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)
APR., 1972								
04...	1130	27	1.4	.10	.000	.04	.060	.010
JUNE								
07...	1130	14	.7	.02	.000	--	.040	.040
SEP.								
13...	1130	.10	2.2	.12	.000	.02	.050	.020

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)
APR., 1972								
04...	1130	1.0	23	.00	.00	.0	.00	.00
MAY								
27...	1630	16.0	78	.00	.00	.0	.00	.00
JUNE								
07...	1130	23.0	14	.00	.00	.0	.00	.00
JULY								
26...	0900	19.0	34	.00	.00	.0	.00	.00
AUG.								
29...	1230	22.0	1.7	.00	.00	.0	.00	.00
SEP.								
13...	1130	12.0	.10	.00	.00	.0	.00	.00

06149500 BATTLE CREEK AT INTERNATIONAL BOUNDARY--Continued

PERIOD OF RECORD.--Chemical analyses: April to September 1972 (discontinued).

REMARKS.--Natural flow of stream affected by storage reservoirs, diversions for irrigation and return flow from irrigated areas.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO
APR., 1972											
04...	82	3.4	.2	.04	.000	288	.39	21.0	180	13	.9
JUNE											
07...	180	4.4	.3	.00	.080	443	.60	16.7	220	92	2.0
SEP.											
13...	310	5.9	.5	.02	.020	573	.78	.15	230	86	2.7

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
APR., 1972										
04...	1130	27	2	0	0	2	3	20	.0	20
JUNE										
07...	1130	14	2	0	0	1	2	20	.4	0
SEP.										
13...	1130	.10	3	0	0	0	0	10	.2	20

DATE	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
APR., 1972								
04...	.00	.00	.00	.00	.00	.00	.01	.00
MAY								
27...	.00	.00	.00	.00	.00	.14	.00	.00
JUNE								
07...	.00	.00	.00	.00	.00	.00	.00	.00
JULY								
26...	.00	.00	.00	.00	.00	.00	.00	.00
AUG.								
29...	.00	.00	.00	.00	.00	.00	.00	.00
SEP.								
13...	.00	.00	.00	.00	.00	.00	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)
SEP., 1972												
13...	1130	.10	<.2	<.2	<1.0	<.2	<.2	<.2	<.2	<.2	<.2	<.2

06149500 BATTLE CREEK AT INTERNATIONAL BOUNDARY--Continued

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
APR., 1972								
04...	1130	1.0	4.0	440	13.4	8.0	156	30
JUNE								
07...	1130	23.0	31.5	700	10.2	8.9	187	7100
SEP.								
13...	1130	12.0	17.5	850	10.0	9.1	113	0

RADIOCHEMICAL ANALYSES

DATE	TIME	DISCHARGE (CFS)	DISSOLVED NATURAL URANIUM (U) (UG/L)	DISSOLVED RA-226 (RADON METHOD) (PC/L)	DISSOLVED GROSS ALPHA AS U-NAT. (UG/L)	DISSOLVED GROSS ALPHA AS U-NAT. (PC/L)	DISSOLVED GROSS BETA AS SR90 /Y90 (PC/L)
APR., 1972							
04...	1130	27	2.8	.08	13	4.4	11
SEP.							
13...	1130	.10	2.9	--	8.9	3.0	15

DATE	DISSOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILTRABLE RESIDUE (MG/L)	SUSPENDED GROSS ALPHA AS U-NAT. (UG/L)	SUSPENDED GROSS ALPHA AS U-NAT. (PC/L)	SUSPENDED GROSS BETA AS SR90 /Y90 (PC/L)	SUSPENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NONFILTRABLE RESIDUE (MG/L)
APR., 1972							
04...	13	300	1.8	.6	3.7	4.2	30
SEP.							
13...	18	420	.5	.2	2.7	3.0	20

06164000 FRENCHMAN RIVER AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 49°00'01", long 107°18'04", in SE¼ sec.5, T.1, R.10 W., third meridian, at gaging station 50 ft north of international boundary and 22 miles northeast of Whitewater, Mont.

DRAINAGE AREA.--2,299 sq mi.

PERIOD OF RECORD.--Chemical analyses: April to September 1972 (discontinued).

REMARKS.--Natural flow of stream affected by several storage reservoirs, diversions for irrigation, and return flow from irrigated areas.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)
APR., 1972								
28...	1300	9.0	149	.00	.00	.0	.00	.00
JUNE								
29...	1730	20.0	12	.00	.00	.0	.00	.00
JULY								
26...	1845	23.5	41	.00	.00	.0	.00	.00
AUG.								
10...	1515	23.5	8.3	.00	.00	.0	.00	.00
SEP.								
30...	1630	7.5	.28	.00	.00	.0	.00	.00

DATE	DDT (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
APR., 1972								
28...	.00	.00	.00	.00	.00	.00	.00	.00
JUNE								
29...	.00	.00	.00	.00	.00	.00	.00	.00
JULY								
26...	.00	.00	.00	.00	.00	.00	.00	.00
AUG.								
10...	.00	.00	.00	.00	.00	.00	.00	.00
SEP.								
30...	.00	.00	.00	.00	.00	.00	.00	.00

06172000 MILK RIVER AT VANDALIA, MONT.

LOCATION.--Lat 48°21'33", long 106°54'14", in SE¼NW¼ sec.15, T.30 N., R.37 E., Valley County, at gaging station at county bridge 0.3 mile northeast of Vandalia Post Office, 0.9 mile upstream from Bear Creek, 7.1 miles downstream from Vandalia Dam, and at mile 105.3.

DRAINAGE AREA.--20,944 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1972.
Water temperatures: October 1969 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 1,210 mg/l Jan. 1-31; minimum, 307 mg/l Mar. 16-31.
Hardness: Maximum, 440 mg/l Jan. 1-31; minimum, 120 mg/l Mar. 16-31.
Specific conductance: Maximum daily, 1,850 micromhos Jan. 7; minimum daily, 381 micromhos Mar. 18.
Water temperatures: Maximum, 24.5°C Aug. 12, 16; minimum, freezing point on many days during November to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-09	--	191	--	6.3	0	52	27	110	4.9	250	0	230
10-22	--	97	--	7.3	0	50	35	130	6.0	248	0	330
23-31	--	93	--	7.0	0	66	40	160	6.6	274	0	440
NOV.												
01-13	--	165	--	7.4	0	65	39	190	6.5	328	0	430
14-30	--	165	--	3.9	10	60	30	120	4.7	279	0	290
DEC.												
01-07	--	131	--	5.6	0	51	37	150	4.6	263	0	360
08-31	--	116	--	6.7	0	56	45	200	6.1	291	0	500
JAN.												
01-31	--	101	--	25	30	82	57	230	6.9	354	0	590
FEB.												
01-29	--	106	--	9.8	10	75	43	200	5.6	325	0	460
MAR.												
01-15	--	228	--	8.0	10	70	38	180	5.7	309	0	400
16-31	--	2370	--	6.1	40	28	12	52	6.3	110	0	140
APR.												
01-08	--	326	--	6.7	30	35	16	65	6.1	149	0	160
09-18	--	194	--	6.6	20	46	21	86	7.2	165	0	240
19-30	--	207	--	5.0	20	51	25	100	7.2	190	0	300
MAY												
01-08	--	270	--	3.7	20	57	28	120	6.7	229	0	300
09-31	--	275	--	4.1	20	50	23	88	5.4	219	0	220
JUNE												
01-09	--	565	--	5.0	20	52	25	94	5.6	226	0	240
10-17	--	4070	--	10	30	33	12	44	6.9	124	0	170
18-30	--	887	--	8.7	20	43	18	71	7.0	177	0	180
JULY												
18-31	--	364	--	6.3	20	49	23	79	5.4	234	0	190
AUG.												
01-19	--	122	--	6.3	20	51	25	87	5.5	250	0	200
21-31	--	504	--	6.0	10	50	24	82	5.3	252	0	190
SEP.												
01-12	--	277	--	5.1	10	44	21	63	4.4	219	0	160
13-30	--	198	--	4.0	20	51	24	76	4.6	237	0	180
WTD. AVG.	--	--	--	7.5	25	42	20	85	6.2	179	0	213
TIME WTD. AVG.	--	415	--	8.1	16	56	31	128	5.9	252	0	315
TONS PER DAY	--	--	--	8.4	0	47	22	95	7.0	201	0	230
ANALYSES OF ADDITIONAL SAMPLES												
OCT. 27...	1030	45	3.5	6.5	10	110	52	250	6.1	453	0	660
JAN. 19...	1100	110	.0	25	20	120	57	230	8.7	484	0	610
APR. 17...	1400	190	9.0	6.6	30	44	22	92	6.5	155	0	260
JULY 17...	1400	160	20.0	6.4	20	52	24	87	6.1	231	0	190

06172000 MILK RIVER AT VANDALIA, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 1,210 mg/l Jan. 1-31, 1972; minimum, 229 mg/l Feb. 21-28, 1971.
Hardness: Maximum, 451 mg/l Dec. 8-31, 1969; minimum, 104 mg/l Apr. 12-18, 1970.
Specific conductance: Maximum daily, 1,850 micromhos Jan. 7, 1972; minimum daily, 307 micromhos Feb. 22, 1971.
Water temperatures: Maximum observed, 26.5°C July 11, 1970; minimum, freezing point on many days during winter periods.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Dissolved solids, 1,340 mg/l Oct. 27, 1,320 mg/l Jan. 19; hardness, 530 mg/l Jan. 9, 490 mg/l Oct. 27. Flow regulated by several reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-09	14	.3	.00	--	567	.77	292	240	36	3.1	851	8.3
10-22	19	.3	.00	--	700	.95	183	270	65	3.5	1070	8.2
23-31	25	.4	.00	--	880	1.20	221	330	100	3.8	1280	8.2
NOV.												
01-13	23	.4	.00	--	923	1.26	411	320	54	4.6	1380	8.2
14-30	21	.4	.00	--	667	.91	297	270	44	3.2	1020	8.2
DEC.												
01-07	26	.2	.00	--	764	1.04	270	280	64	3.9	1140	8.3
08-31	36	.3	.04	--	993	1.35	311	320	86	4.8	1463	8.3
JAN.												
01-31	48	.3	.01	--	1210	1.65	330	440	150	4.8	1680	8.1
FEB.												
01-29	50	.3	.85	.000	1010	1.37	289	360	98	4.6	1450	8.1
MAR.												
01-15	27	.4	.77	.000	884	1.20	544	330	78	4.3	1310	8.3
16-31	6.4	.3	.47	.000	307	.42	1960	120	29	2.1	470	7.7
APR.												
01-08	6.8	.2	.05	.000	369	.50	325	150	31	2.3	597	7.5
09-18	11	.3	.01	.000	499	.68	261	200	66	2.6	784	7.5
19-30	10	.3	.00	.000	592	.81	331	230	74	2.9	901	7.8
MAY												
01-08	13	.3	.00	.000	641	.87	467	260	70	3.3	1010	7.9
09-31	12	.2	.00	.000	510	.69	379	220	40	2.6	821	7.8
JUNE												
01-09	12	.3	.01	.000	545	.74	831	230	47	2.7	859	7.7
10-17	6.0	.5	.38	.030	367	.50	4030	130	30	2.5	585	7.4
18-30	8.0	.3	.00	.010	423	.58	1010	180	36	2.3	693	7.4
JULY												
18-31	9.4	.3	.02	.010	478	.65	470	220	25	2.3	757	8.0
AUG.												
01-19	11	.3	.01	.010	509	.69	168	230	25	2.5	808	8.0
21-31	12	.3	.00	.010	494	.67	672	220	17	2.4	779	7.8
SEP.												
01-12	9.7	.3	.00	.000	417	.57	312	200	22	1.9	664	8.0
13-30	11	.3	.00	.000	468	.64	250	230	32	2.2	755	8.1
WTD. AVG.	12	.3	.25	--	474	.65	--	186	40	2.6	733	7.7
TIME WTD. AVG.	21	.3	.14	--	690	.94	--	267	62	3.3	1040	8.0
TONS PER DAY	13	.4	.28	--	531	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
27...	32	.3	.01	--	1340	1.82	183	490	120	4.9	1850	7.7
JAN.												
19...	31	.0	.60	--	1320	1.80	392	530	140	4.9	1850	7.7
APR.												
17...	12	.4	.00	.000	518	.70	210	200	73	2.0	807	8.0
JULY												
17...	11	.4	.00	.010	501	.68	216	230	23	2.5	805	7.7

06172000 MILK RIVER AT VANDALIA, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
27...	1030	45	.080	350	1100
NOV.					
24...	0930	170	.040	--	--
DEC.					
27...	1200	100	.080	--	--
JAN.					
19...	1100	110	.040	280	180
FEB.					
28...	1500	105	.040	--	--
MAR.					
29...	1315	165	.080	--	--
APR.					
17...	1400	150	.010	140	30
MAY					
15...	1300	195	.020	--	--
JUNE					
26...	1500	1010	.090	--	--
JULY					
17...	1600	160	.040	150	20
AUG.					
15...	1500	87	.020	--	--
SEP.					
21...	1400	171	.070	--	--

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	765	1210	1190	1700	1950	1470	561	986	855	----	785	693
2	781	1160	1150	1790	1990	1450	562	949	889	----	765	693
3	805	1180	1110	1790	1570	1490	571	952	878	----	765	----
4	805	1260	1190	1780	1960	1480	592	1000	903	----	775	----
5	815	1370	1250	1790	1940	1450	562	993	843	----	783	693
6	858	1420	1300	1810	1970	1490	571	1090	769	----	----	693
7	874	1480	1280	1890	1990	1340	606	989	808	----	785	655
8	897	1400	1400	1790	1960	1450	686	933	888	----	785	640
9	972	1570	1440	1790	1940	1410	767	826	824	----	793	634
10	1010	1550	1480	1790	1950	1380	748	802	659	----	789	----
11	1040	1560	1550	1790	1940	1400	767	802	911	----	810	640
12	1040	1550	1560	1830	1940	1410	773	880	874	----	812	640
13	1070	1560	1500	1790	1910	1290	789	875	667	----	----	727
14	1093	1590	1600	1790	1940	1040	797	920	967	----	816	820
15	1160	994	1610	1790	1910	1100	795	819	909	----	816	784
16	1160	970	1600	1790	1990	631	767	846	930	----	819	760
17	1160	970	1590	1790	1940	410	797	875	957	----	838	----
18	1160	1000	1560	1790	1990	561	787	841	890	765	840	760
19	1210	1000	1520	1600	1980	550	846	791	886	747	861	784
20	1210	970	1520	1690	1980	637	889	780	860	724	----	760
21	1210	960	1520	1690	1980	601	873	782	830	739	894	760
22	1210	960	1520	1790	1980	565	830	797	830	721	916	760
23	1180	970	1520	1690	1980	610	842	797	847	----	848	760
24	1120	960	1560	1790	1980	580	863	797	852	783	842	----
25	1180	1030	1580	1880	1910	594	894	765	898	766	856	820
26	1090	1020	1580	1790	1960	560	810	780	850	798	867	780
27	1080	1030	1580	1790	1960	580	842	780	886	798	----	784
28	1120	1040	1590	1790	1960	580	863	780	886	798	----	784
29	1100	----	1590	1890	1960	580	863	780	863	798	881	----
30	1100	----	1590	1890	----	620	880	776	886	----	816	----
31	1070	----	1590	1890	----	580	----	872	----	798	880	----
MONTH	1120	1040	1590	1790	1990	620	798	880	850	----	798	----
MEAN	1070											

06172000 MILK RIVER AT VANDALIA, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	1.0	0.0	1.0	0.5	0.0	4.5	10.0	19.5	---	23.0	19.5
2	10.5	1.5	0.0	0.5	0.0	0.0	5.0	9.5	20.0	---	22.5	19.0
3	11.0	1.0	1.0	0.5	0.0	0.0	3.0	10.5	20.5	---	22.0	---
4	11.5	3.0	1.0	0.0	0.0	0.0	3.0	11.0	22.0	---	22.0	---
5	12.0	1.0	0.5	1.0	0.0	0.0	4.0	11.5	21.5	---	21.5	18.5
6	12.0	0.0	0.5	1.0	0.0	1.0	5.5	10.0	22.0	---	---	16.0
7	12.5	0.0	0.0	0.5	0.0	0.0	7.0	10.5	22.0	---	22.0	15.0
8	11.0	1.0	0.5	0.5	0.0	0.5	7.0	10.0	23.0	---	21.5	15.5
9	10.5	1.0	1.0	1.0	0.5	0.5	7.0	10.5	22.0	---	21.5	15.5
10	11.0	2.0	1.0	0.5	1.0	1.0	7.0	10.5	17.0	---	22.0	---
11	11.0	1.0	1.0	1.0	1.0	1.0	7.5	11.0	19.0	---	24.0	14.5
12	11.0	1.0	0.5	0.5	1.0	1.0	9.0	11.5	20.0	---	24.5	14.5
13	11.5	1.5	0.5	0.0	1.0	2.0	8.5	11.5	21.0	---	---	15.0
14	11.0	1.5	0.0	0.0	1.0	1.5	9.0	13.5	19.5	---	22.5	15.0
15	10.0	2.5	1.0	0.0	0.5	2.0	9.0	14.0	19.5	---	23.5	15.0
16	7.5	1.0	0.0	0.0	0.5	1.5	8.5	15.5	20.0	---	24.5	14.5
17	6.0	1.5	1.0	0.0	0.5	1.0	8.0	17.5	20.0	---	23.0	---
18	7.0	1.5	1.0	0.0	0.5	2.0	7.5	17.5	21.5	20.5	24.0	15.0
19	7.5	4.0	1.0	0.0	1.0	1.0	7.5	18.0	21.0	18.5	23.5	15.5
20	7.5	3.0	1.0	0.0	1.0	1.5	8.5	18.0	21.0	17.5	---	13.5
21	8.0	1.5	1.0	0.0	1.0	2.5	9.5	17.5	20.0	17.0	22.5	11.5
22	8.0	1.5	0.5	0.0	1.0	3.5	9.5	17.0	19.5	17.5	22.5	11.5
23	8.0	1.0	0.5	0.0	0.5	5.0	9.0	17.5	20.0	---	22.0	12.0
24	7.0	1.0	0.5	0.0	0.0	5.5	8.5	18.5	20.0	20.0	22.0	---
25	8.0	0.5	0.0	0.0	0.0	5.5	9.0	18.5	19.5	20.5	22.0	9.5
26	7.5	1.0	0.0	0.0	0.0	5.5	9.5	18.5	20.0	21.5	21.5	9.0
27	5.0	1.0	0.0	0.0	0.0	4.0	10.0	17.0	20.0	22.0	---	8.5
28	3.5	0.0	0.5	0.0	0.0	3.5	10.5	17.0	20.5	22.5	22.5	8.0
29	2.0	0.0	0.5	0.0	0.0	3.0	10.5	17.0	20.0	23.5	23.0	7.5
30	3.0	0.5	1.0	0.0	---	3.0	11.5	17.5	20.5	---	23.0	7.5
31	0.5	---	1.5	0.0	---	3.5	---	18.5	---	23.5	20.5	---
MONTH	8.5	1.5	0.5	0.5	0.5	2.0	8.0	14.5	20.5	---	22.5	13.5
YEAR	8.5											

06174200 MILK RIVER NEAR GLASGOW, MONT.

LOCATION.--Lat 48°09'36", long 106°35'31", in NE¼NW¼ sec.29, T.28 N., R.40 E., Valley County, at bridge on State Highway 24, 0.2 mile downstream from Willow Creek, 2.9 miles southeast of Glasgow, and at mile 58.0.

DRAINAGE AREA.--23,200 sq mi, approximately.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
27...	1330	40	85	40	170	370	32	.5	830	1.13	89.6
NOV.											
22...	1100	200	66	31	--	--	25	--	712	--	384
DEC.											
27...	1430	100	100	50	--	520	41	--	1010	1.37	273
JAN.											
19...	1400	110	130	63	270	650	55	.1	1420	1.93	422
FEB.											
28...	1230	105	99	46	--	470	37	--	1090	1.48	309
MAR.											
29...	1100	800	32	15	--	160	9.0	--	404	.55	873
APR.											
17...	1200	250	46	21	93	260	14	.3	620	.84	418
MAY											
15...	1200	300	53	24	--	240	14	--	604	.82	489
JUNE											
26...	1130	1100	48	21	--	200	8.7	--	478	.65	1420
JULY											
17...	1200	200	58	26	100	230	16	.6	600	.82	324
AUG.											
15...	1200	150	54	25	100	230	18	.4	--	.78	233
SEP.											
19...	1100	200	52	24	86	190	16	.3	--	.68	271

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
27...	1330	40	1	0	260	0	0	12	.00
JAN.									
19...	1400	110	0	0	320	1	0	7	.00
APR.									
17...	1200	250	20	0	170	0	0	10	.00
AUG.									
15...	1200	150	--	--	--	--	--	--	--
SEP.									
19...	1100	200	--	--	--	--	--	--	--

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
27...	1330	40	.00	.00	.0	.00	.00	.00
JAN.								
19...	1400	110	.00	.00	.0	.00	.00	.00
APR.								
17...	1200	250	.00	.00	.0	.00	.00	.00

06174200 MILK RIVER NEAR GLASGOW, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1969 to September 1972.

REMARKS.--Water discharge estimated from records for station 06174500, Milk River at Nashua. Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
27...	380	3.8	.01	.17	--	--	--	--	.10	3.3
NOV.										
22...	290	--	.01	.11	--	--	--	--	.090	2.2
DEC.										
27...	460	--	.06	.11	--	--	--	--	.070	2.4
JAN.										
19...	580	4.9	.22	.33	--	--	--	--	.10	1.8
FEB.										
28...	440	--	.76	.41	--	--	--	--	.080	1.0
MAR.										
29...	140	--	.21	1.3	--	--	--	--	.28	2.8
APR.										
17...	200	2.9	.01	.74	--	--	--	--	.32	4.0
MAY										
15...	230	--	.04	.12	--	--	--	--	.16	1.9
JUNE										
26...	210	--	.08	.50	--	--	--	--	.38	1.9
JULY										
17...	250	2.7	.01	--	.70	.69	.020	.060	.19	2.0
AUG.										
15...	240	2.8	.01	--	--	--	.050	.070	--	2.7
SEP.										
19...	230	2.5	.00	--	--	--	.030	.070	--	2.9

DATE	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.								
27...	2	120	.1	0	1	2	0	20
JAN.								
19...	2	180	--	0	3	2	0	10
APR.								
17...	1	0	.4	0	7	2	0	7
AUG.								
15...	--	50	--	--	--	--	--	10
SEP.								
19...	--	0	--	--	--	--	--	20

DATE	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.							
27...	.00	.00	.00	.00	.03	.00	.00
JAN.							
19...	.00	.00	.00	.00	.06	.00	.00
APR.							
17...	.00	.00	.00	.00	.06	.00	.00

06174200 MILK RIVER NEAR GLASGOW, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT. 27...	1330	4.5	3.5	1290	10.8	8.3	--	--	290
NOV. 22...	1100	.0	6.5	1070	13.2	8.3	--	--	62
DEC. 27...	1430	.0	-10.0	1010	11.0	7.9	--	--	130
JAN. 19...	1400	.0	-10.0	2150	8.8	8.0	--	--	1200
FEB. 28...	1230	.0	-8.0	1550	10.0	7.5	--	--	1500
MAR. 29...	1100	3.0	-1.0	580	11.8	8.1	--	--	60
APR. 17...	1200	7.5	5.5	835	10.4	8.5	--	--	2100
MAY 15...	1200	15.0	20.0	880	8.8	8.3	--	--	40
JUNE 26...	1130	20.0	17.5	740	7.0	--	--	--	500
JULY 17...	1200	20.0	21.0	910	8.0	8.4	217	1600	3000
AUG. 15...	1200	24.0	27.0	900	6.6	8.4	204	38000	5000
SEP. 19...	1100	15.5	15.5	800	8.4	8.4	188	79000	8200

LITTLE PORCUPINE CREEK BASIN

06175400 FRAZER RESERVOIR OUTLET AT FRAZER, MONT.

LOCATION.--Lat 48°03'18", long 106°00'28", in SE¼NW¼ sec.35, T.27 N., R.44 E., Valley County, at outlet of Frazer Reservoir, 1 mile southeast of Frazer.

PERIOD OF RECORD.--Chemical analyses: October and November 1961, April 1962 to September 1972.

REMARKS.--No flow during most of water year.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DISCHARGE (CFS)	TEMPERATURE (DEG C)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JULY 20...	0930	8.0	17.0	3.3	40	24	14	77	7.4	142	7	190
SEP. 29...	1120	12	--	6.9	30	27	13	84	7.7	161	10	190

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED ORTHO-PHOSPHATE (P) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER SQ FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)
JULY 20...	6.0	.4	.00	.040	800	.60	5.75	400	0	5.1	900	8.7
SEP. 29...	6.0	.4	.00	.11	800	.60	12.0	400	0	5.0	800	8.8

06177000 MISSOURI RIVER NEAR WOLF POINT, MONT.

LOCATION.--Lat 48°03'57", long 105°32'12", in SW¼NW¼ sec.28, T.27 N., R.48 E., McCone County, at gaging station at bridge on State Highway 13, 5 miles southeast of Wolf Point, 7.8 miles downstream from Wolf Creek, and at mile 1,701.4.

DRAINAGE AREA.--82,290 sq mi.

PERIOD OF RECORD.--Chemical analyses: March 1949 to September 1951, September 1961 to September 1962, July 1965 to September 1968, October 1969 to September 1972.

REMARKS.--Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
29...	1000	7760	3.5	7.6	20	55	22	46	3.6	200	0	160
NOV.												
23...	1430	8040	4.0	6.4	10	55	20	46	3.6	191	0	160
DEC.												
29...	1630	10100	.0	7.2	0	57	22	49	4.2	197	0	170
JAN.												
18...	1530	13800	.0	7.2	20	57	22	45	5.4	194	0	160
FEB.												
29...	1700	9300	.0	7.7	10	57	22	49	4.4	206	0	170
MAR.												
28...	1430	12600	2.0	9.0	40	55	20	44	4.3	211	0	150
APR.												
20...	1145	13100	6.0	6.9	10	54	20	48	4.0	186	0	160
MAY												
16...	1545	14700	11.5	7.1	10	56	21	47	4.0	190	0	150
JUNE												
27...	1530	8850	16.0	7.4	60	52	20	46	4.4	205	0	150
JULY												
18...	1830	9740	14.5	7.8	30	54	20	43	3.6	185	0	140
AUG.												
16...	1030	10100	15.5	7.6	10	54	19	44	3.7	186	0	150
SEP.												
19...	1230	8710	14.5	7.8	10	53	20	42	3.4	189	0	140

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
29...	7.9	.6	.01	--	401	.55	8400	230	64	1.3	624	8.1
NOV.												
23...	7.9	.8	.00	--	394	.54	8950	220	63	1.4	633	8.1
DEC.												
29...	9.1	.8	.00	--	416	.57	11300	230	71	1.4	641	8.1
JAN.												
18...	8.6	.5	.02	--	401	.55	14900	230	74	1.3	633	8.1
FEB.												
29...	8.9	.7	.03	--	421	.57	10800	230	64	1.4	639	8.2
MAR.												
28...	7.7	.7	.03	.010	395	.54	13400	220	47	1.3	612	7.9
APR.												
20...	8.7	.7	.00	.080	394	.54	13900	220	65	1.4	620	8.2
MAY												
16...	8.2	.6	.00	.080	387	.53	15400	230	79	1.4	617	8.0
JUNE												
27...	7.0	.6	.02	.080	389	.53	9800	210	64	1.4	610	8.2
JULY												
18...	7.0	.7	.00	.000	367	.50	9600	220	65	1.3	601	7.6
AUG.												
16...	7.7	.7	.00	.030	378	.51	10800	210	60	1.3	600	8.3
SEP.												
19...	8.6	.7	.01	.000	368	.50	8610	210	60	1.2	596	8.2

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.
(Irrigation network station)

LOCATION.--Lat 48°07'24", long 104°28'30", in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, at gaging station at bridge on State Highway 16, 3 miles southeast of Culbertson, 9.6 miles downstream from Big Muddy Creek, and at mile 1,620.76.

DRAINAGE AREA.--91,557 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1965 to September 1972.
Water temperatures: July 1965 to September 1972.
Sediment records: October 1971 to September 1972.

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 779 micromhos June 26; minimum daily, 374 micromhos Mar. 17.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
28...	1200	8340	5.0	7.6	10	57	22	47	3.2	194	0	160
NOV.												
22...	1500	8340	4.5	7.0	10	55	21	48	3.6	196	0	170
DEC.												
28...	1300	9600	.0	7.5	40	60	23	53	4.4	205	0	170
JAN.												
17...	1300	11400	.0	7.5	20	58	22	45	3.6	202	0	170
FEB.												
29...	1400	14000	.0	7.7	20	56	22	48	4.4	203	0	170
MAR.												
27...	1530	17400	2.0	8.6	40	41	17	46	5.3	169	0	130
APR.												
18...	1100	15100	4.5	6.7	10	55	22	52	4.0	194	0	170
MAY												
16...	1430	15300	13.5	7.0	160	55	22	53	4.3	207	0	170
JUNE												
27...	1330	9800	18.5	7.2	20	50	20	62	5.2	226	0	160
JULY												
18...	1600	9530	16.0	7.0	--	52	20	46	3.7	192	0	150
AUG.												
16...	1500	11400	19.5	7.5	10	52	19	49	4.3	191	0	160
SEP.												
20...	1130	9020	13.5	7.7	20	53	20	42	3.6	189	--	140

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.											
28...	1200	8340	386	0	.00	--	--	--	--	.13	1.7
NOV.											
22...	1500	8340	426	20	.13	--	--	--	--	.10	1.4
DEC.											
28...	1300	9600	422	80	.00	--	--	--	--	.10	1.6
JAN.											
17...	1300	11400	456	10	.03	--	--	--	--	.040	1.0
FEB.											
29...	1400	14000	420	0	.13	--	--	--	--	.050	1.9
MAR.											
27...	1530	17400	300	0	.07	--	--	--	--	.32	0.1
APR.											
18...	1100	15100	396	10	.02	--	--	.000	--	.07	0.7
MAY											
16...	1430	15300	400	15	.07	--	--	.010	--	.08	0.6
JUNE											
27...	1330	9800	402	10	.17	--	--	.010	--	.07	1.1
JULY											
18...	1600	9530	430	--	.04	.41	.40	.000	.000	.04	.8
AUG.											
16...	1500	11400	396	10	--	--	--	.010	--	--	.8
SEP.											
20...	1130	9020	400	0	--	--	--	.000	--	--	0.0

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 20.0°C July 28, 29; minimum, freezing point on many days during November to March.
Sediment concentrations: Maximum daily, 1,990 mg/l Mar. 23; minimum daily, 81 mg/l Dec. 13.
Sediment discharge: Maximum daily, 128,000 tons Mar. 21, 23; minimum daily, 1,620 tons Dec. 13.

Period of record:
Specific conductance: Maximum daily, 807 micromhos May 10, 1970; minimum daily, 338 micromhos Mar. 30, 1967.
Water temperatures: Maximum observed, 24.5°C July 17, 1966; minimum, freezing point on many days during winter periods.

REMARKS.--Prior to July 1972, sediment sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
28...	8.2	.7	.04	90	401	.53	8690	230	74	1.3	637	8.2
NOV.												
22...	8.1	.8	.04	--	410	.58	9780	220	63	1.4	649	8.1
DEC.												
28...	9.8	.9	.00	--	430	.57	10900	240	76	1.5	664	8.1
JAN.												
17...	8.7	.8	.07	100	415	.62	14000	240	70	1.3	661	8.0
FEB.												
29...	9.3	.9	.01	--	418	.58	16100	230	64	1.4	639	8.2
MAR.												
27...	6.2	.6	.11	--	338	.48	16400	170	34	1.5	546	7.8
APR.												
18...	8.8	.8	.02	120	415	.48	14500	230	69	1.5	654	8.2
MAY												
16...	8.7	.7	.01	--	423	.58	17700	230	58	1.5	657	8.2
JUNE												
27...	7.7	.6	.00	--	424	.60	11700	210	22	1.9	663	8.3
JULY												
18...	7.0	.8	.00	120	381	.55	10500	210	55	1.4	612	8.2
AUG.												
16...	7.2	.6	.00	--	394	.54	12100	210	51	1.5	619	8.3
SEP.												
20...	7.9	.8	.02	--	368	.55	9790	210	60	1.2	600	8.2

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
28...	1200	9.0	-4.5	640	10.2	8.6	--	--	18
NOV.									
22...	1300	4.5	4.5	690	12.0	8.4	--	--	0
DEC.									
28...	1300	.0	-15.0	710	10.0	8.0	--	--	6
JAN.									
17...	1300	.0	4.0	660	8.4	8.4	--	--	1
FEB.									
29...	1400	.0	-5.0	670	12.2	8.6	--	--	30
MAR.									
27...	1330	2.0	-1.5	590	11.8	8.2	--	--	20
APR.									
18...	1300	4.5	5.0	670	10.0	8.5	--	--	0
MAY									
16...	1430	15.5	23.5	660	8.4	8.6	--	--	6
JUNE									
27...	1330	19.5	21.0	680	8.0	--	--	--	500
JULY									
18...	1400	16.0	15.0	660	8.0	8.5	155	400	60
AUG.									
16...	1400	19.5	20.0	640	8.2	8.4	150	6000	150
SEP.									
20...	1330	15.5	15.0	660	8.6	8.4	160	300	10

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	650	628	657	594	620	622	627	635	680	650	626	634
2	637	628	657	634	644	646	627	643	680	653	626	634
3	626	633	647	629	634	646	638	641	666	653	626	621
4	631	633	652	608	634	649	638	640	658	649	625	608
5	631	635	654	621	633	635	646	637	657	642	625	608
6	650	661	642	631	634	630	641	643	647	640	625	608
7	650	661	656	607	579	635	646	644	640	636	613	608
8	644	665	676	600	620	633	650	646	635	635	604	602
9	626	649	662	606	614	635	646	643	675	634	678	602
10	625	649	656	706	630	626	646	641	641	634	678	602
11	626	633	676	600	608	631	639	637	637	631	678	596
12	637	646	698	600	620	608	641	646	625	627	678	600
13	650	638	656	582	614	569	639	646	609	612	678	600
14	635	642	640	616	608	498	646	650	573	617	664	600
15	631	638	640	618	608	430	646	653	555	618	664	600
16	614	642	676	638	608	388	641	651	611	603	678	686
17	613	638	676	638	607	374	646	653	602	600	722	600
18	624	646	697	638	614	400	646	648	600	601	678	600
19	626	635	640	638	609	397	646	648	629	600	671	600
20	612	632	621	606	609	391	646	653	615	593	671	600
21	614	633	626	612	608	408	646	644	609	593	671	600
22	613	636	602	616	608	477	653	643	611	598	671	594
23	614	636	698	620	614	470	646	646	621	606	671	590
24	635	642	627	620	633	504	636	675	619	610	678	590
25	650	646	647	616	644	556	639	646	637	608	685	590
26	639	642	624	616	633	542	639	662	779	607	678	590
27	636	642	621	618	635	544	646	679	656	609	678	590
28	631	649	640	630	620	539	646	659	671	610	706	590
29	631	647	640	625	631	573	646	676	665	610	706	590
30	650	647	652	617	---	602	641	648	658	624	699	606
31	650	---	666	612	---	609	---	661	---	624	706	---
MONTH	632	642	652	620	620	544	643	650	639	620	666	602
YEAR	627											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.								
20...	1200	8340	5	0	0	2	2	.00
JAN.								
17...	1300	11400	0	0	0	0	6	.00
APR.								
18...	1100	15100	0	0	1	0	4	.00
JULY								
18...	1600	9530	--	0	--	--	--	--

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
20...	1200	8340	.00	.00	.0	.00	.00	.00
JAN.								
17...	1300	11400	.00	.00	.0	.00	.00	.00
APR.								
18...	1100	15100	.00	.00	.0	.00	.00	.00

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	3.0	1.0	0.0	0.0	0.0	2.5	8.5	16.0	18.5	18.0	15.0
2	10.0	3.5	1.0	0.0	0.0	0.0	3.5	7.5	16.5	16.0	18.0	15.0
3	8.0	3.0	1.0	0.0	0.0	0.0	1.5	6.0	17.0	16.0	17.0	14.0
4	9.5	4.0	1.0	0.0	0.0	0.0	1.5	7.5	18.0	15.5	16.5	14.0
5	10.5	2.0	0.0	0.0	0.0	0.0	2.5	8.5	17.5	16.0	17.0	13.5
6	11.5	0.0	0.0	0.0	0.0	0.0	4.5	7.0	18.0	16.5	16.5	13.5
7	12.0	0.0	0.0	0.0	0.0	0.0	5.5	7.5	18.0	17.5	17.0	12.5
8	11.0	0.0	0.0	0.0	0.0	0.0	5.5	7.5	18.5	17.0	16.5	11.5
9	9.5	0.0	0.0	0.0	0.0	0.0	5.5	7.5	17.5	18.5	17.0	13.0
10	10.0	1.0	0.0	0.0	0.0	0.0	5.0	7.0	16.0	19.0	17.5	13.5
11	10.0	2.5	0.0	0.0	0.0	0.0	5.0	7.0	17.0	18.5	18.0	13.0
12	10.5	3.5	0.0	0.0	0.0	0.0	5.5	7.5	16.5	18.0	19.0	12.5
13	10.5	4.5	0.0	0.0	0.0	0.0	6.0	7.5	16.0	18.5	19.5	12.0
14	10.0	5.0	0.0	0.0	0.0	1.0	5.5	9.5	16.0	17.5	19.5	12.5
15	9.0	4.5	0.0	0.0	0.0	1.0	6.0	11.0	16.0	16.5	19.0	13.0
16	8.0	4.0	0.0	0.0	0.0	2.5	6.5	12.5	16.0	16.5	18.5	13.0
17	7.0	4.0	0.0	0.0	0.0	2.0	5.0	13.5	17.0	16.0	19.5	12.5
18	7.0	3.5	0.0	0.0	0.0	2.0	4.5	14.0	18.0	16.0	18.5	13.0
19	6.0	3.0	0.0	0.0	0.0	2.0	4.0	14.0	16.0	15.0	19.0	14.0
20	6.5	4.0	0.0	0.0	0.0	1.0	5.0	13.5	16.0	14.5	18.0	13.0
21	7.5	3.5	0.0	0.0	0.0	0.5	6.0	13.5	16.5	14.0	17.0	10.5
22	8.0	4.0	0.0	0.0	0.0	0.5	7.0	13.0	16.0	14.0	17.0	10.5
23	8.5	3.5	0.0	0.0	0.0	0.5	6.5	12.5	16.0	16.0	17.0	10.0
24	9.0	2.0	0.0	0.0	0.0	3.5	6.0	13.5	16.5	17.5	16.0	9.5
25	9.5	1.0	0.0	0.0	0.0	3.0	6.0	14.5	18.0	16.5	16.0	8.5
26	9.0	1.5	0.0	0.0	0.0	3.0	7.5	13.5	18.5	18.5	17.5	7.0
27	7.0	1.0	0.0	0.0	0.0	1.5	7.0	13.0	18.0	19.5	17.5	7.0
28	5.0	0.5	0.0	0.0	0.0	0.5	9.0	12.0	18.0	20.0	17.5	6.0
29	3.0	0.5	0.0	0.0	0.0	1.0	9.0	11.5	19.0	20.0	18.0	6.0
30	2.0	0.5	0.0	0.0	---	1.5	9.5	12.5	19.0	19.5	18.0	8.0
31	2.0	---	0.0	0.0	---	2.0	---	14.5	---	18.0	16.5	---
MONTH	8.5	2.5	0.0	0.0	0.0	1.0	5.5	10.5	17.0	17.0	17.5	11.5
YEAR	7.5											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.							
28...	0	.3	0	0	2	0	10
JAN.							
17...	0	1.0	3	2	2	1	0
APR.							
18...	2	1.0	7	4	1	0	7
JULY							
18...	--	.0	--	--	--	0	--

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.							
28...	.00	.00	.00	.00	.03	.00	.00
JAN.							
17...	.00	.00	.00	.00	.00	.00	.00
APR.							
18...	.00	.00	.00	.00	.04	.00	.00

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
OCT.											
01...	0635	6.5	9150	309	7630	--	--	57	73	100	--
21...	0640	4.5	9700	801	21000	--	--	88	93	100	--
29...	1040	3.5	8280	171	3820	--	--	42	63	100	--
NOV.											
18...	1235	1.5	8370	313	7070	--	--	35	60	99	100
FEB.											
06...	0935	.0	12600	220	7480	--	--	49	61	97	100
MAR.											
12...	0935	.0	11800	252	8030	--	--	42	57	100	--
28...	0610	.5	16600	789	35400	--	--	47	66	100	--
APR.											
12...	1700	5.5	16000	710	30700	--	--	33	56	99	100
MAY											
06...	1305	6.5	15100	340	13900	--	--	45	64	100	--
14...	2110	9.0	15300	428	17700	--	--	36	56	98	100
26...	1850	13.5	14000	444	16800	--	--	42	61	100	--
JUNE											
11...	1835	17.0	17500	812	38400	--	--	69	80	100	--
13...	1810	14.5	22100	176	105000	--	--	82	87	100	--
17...	1630	16.5	19800	1340	71600	--	--	87	91	100	--
JULY											
24...	1430	16.5	10300	724	20100	17	21	48	75	100	--
AUG.											
08...	1345	18.0	10200	201	5540	--	--	54	76	100	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM
JULY										
24...	1430	16.5	10300	724	20100	45	92	98	99	100
AUG.										
08...	1345	18.0	10200	201	5540	1	1	88	100	--
SEP.										
25...	1700	8.0	8330	--	--	2	4	88	100	--

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	9130	304	7490	8550	209	4820	8320	190	4270
2	9150	311	7680	7960	185	3980	8240	190	4230
3	9350	351	8860	8200	226	5000	8320	181	4070
4	9450	276	7040	8250	242	5390	8060	149	3240
5	8950	188	4540	8220	241	5350	7500	140	2840
6	8430	157	3570	8420	240	5460	7600	135	2770
7	8280	142	3170	6800	245	4500	7400	130	2600
8	8240	135	3000	8500	387	8880	6800	129	2370
9	8240	134	2980	9000	390	9480	7000	150	2840
10	8220	135	3000	9000	282	6850	7600	254	5210
11	8260	141	3140	8370	268	6060	7800	385	6420
12	8160	165	3640	8230	261	5900	7600	89	1830
13	8140	235	5160	8180	259	5720	7400	81	1620
14	8060	394	8570	8160	255	5620	7200	89	1730
15	8020	598	12900	8110	258	5650	7100	110	2110
16	8060	821	17900	8030	259	5620	7000	142	2680
17	8080	936	20400	8190	265	5860	7000	181	3420
18	8200	786	17400	8370	319	7210	7500	180	3650
19	8680	734	17200	8800	375	8910	8200	112	2480
20	9130	765	18900	8900	298	6840	9800	91	2210
21	9850	778	20700	8410	217	4930	9800	111	2940
22	9230	585	14600	8380	174	3940	10700	125	3610
23	9450	422	15900	8240	170	3780	11300	130	3970
24	8530	443	10200	8000	170	3670	11600	139	4350
25	8220	159	3530	8160	173	3810	11100	145	4350
26	8300	154	3450	8360	179	4040	10600	152	4350
27	8140	160	3520	7880	181	3850	10100	160	4360
28	8300	166	3720	7980	184	3960	9600	166	4300
29	8280	171	3820	8300	188	4210	9700	172	4500
30	8280	175	3910	8450	189	4310	9700	182	4770
31	8380	185	4190	--	--	--	9800	190	5030
TOTAL	265190	--	264080	248000	--	163500	266640	--	109120

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	10900	290	9060	14000	222	8070	13200	299	10700
2	10800	299	6090	14500	222	8690	12300	280	9960
3	11300	299	6500	14200	221	8470	11000	300	8910
4	11200	287	6260	13700	220	8140	10700	304	8700
5	11200	281	6080	13200	220	7840	10600	306	8620
6	12000	198	6430	13400	219	7450	10900	308	9060
7	13200	192	6840	12500	223	7410	11200	300	9070
8	14000	196	7100	11900	219	7600	11000	291	8640
9	14000	198	7990	11000	273	8760	10900	282	8300
10	13000	192	7700	12000	322	10400	11100	272	8150
11	14600	200	7800	12400	325	10290	11400	266	8050
12	14000	205	7790	13000	306	10900	11800	252	8030
13	12000	211	7290	13000	426	15200	12000	240	10200
14	12000	219	7180	15600	395	16600	13000	203	10500
15	11400	225	6900	15200	369	15100	14000	240	12600
16	11400	230	7290	15500	340	14400	20600	280	16500
17	11400	234	7200	15800	319	13600	21400	280	16400
18	11900	225	7250	16000	292	12600	24000	310	21000
19	12600	234	7110	16400	269	11900	24400	400	26000
20	12900	189	6350	16700	240	11700	19600	1500	120000
21	12700	140	5070	16200	260	11200	27000	1600	120000
22	12600	134	4950	16700	286	12600	23400	1040	117000
23	12500	117	3960	16000	279	12000	23000	1990	120000
24	12400	101	4050	15400	274	10700	20400	1600	96300
25	12100	106	4400	15300	291	12000	19400	1470	74600
26	11900	135	4900	14200	297	11000	18900	1500	67900
27	11600	192	5700	14100	299	11200	17700	1000	50200
28	12400	207	6600	14100	298	11300	16400	750	34100
29	13900	230	8600	14000	287	10900	16100	680	29600
30	15600	224	9500	--	--	--	15400	610	25700
31	15800	224	9800	--	--	--	15400	720	30000
TOTAL	391200	--	200070	480700	--	309600	575100	--	1044000

06185500 MISSOURI RIVER NEAR CULBERTSON, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	15500	700	29300	14100	545	20700	13000	355	12500
2	16800	810	36700	14500	479	18800	13200	358	12800
3	17400	680	31900	14800	450	18000	13000	320	11200
4	17200	555	25800	14900	430	17300	12400	275	9210
5	17300	540	25200	15100	400	16300	12500	331	11200
6	16700	500	22500	15100	340	13900	12400	325	10900
7	16400	470	20800	14800	310	12400	12300	288	9300
8	16000	495	21400	14300	320	12400	13000	310	10900
9	16100	490	21300	14500	359	14100	14400	415	16100
10	15900	460	19700	14600	408	16100	15400	560	23300
11	16200	475	20800	14800	445	17800	17300	755	35300
12	16000	650	28100	14800	450	18000	18600	1110	55700
13	15800	720	30700	15300	440	18200	21700	1640	96100
14	16100	680	29600	15300	430	17800	19600	1900	101000
15	15600	559	23500	15300	425	17600	18200	1910	93900
16	15100	470	19200	15100	445	18100	19200	1720	89200
17	15000	445	18000	15200	440	18100	19900	1390	74700
18	15100	420	17100	15200	410	16800	18600	1020	51200
19	15000	400	16200	13300	380	13600	15100	640	26100
20	14900	375	15100	12000	350	11300	11600	490	15300
21	13400	385	13900	11500	338	10500	10200	518	14300
22	11900	470	15100	11000	360	10700	9730	525	13800
23	13200	490	17500	10900	420	12400	9700	460	12000
24	14400	465	18100	11700	470	14800	9700	418	10900
25	14400	410	15900	12800	470	16200	9730	465	12200
26	13000	360	12600	14000	455	17200	10500	841	23800
27	11400	325	10000	13700	550	20300	9950	818	22000
28	11100	319	9560	13900	1270	47700	9750	572	15100
29	11200	340	10300	14200	862	33000	9730	420	11000
30	13000	490	17200	13200	410	14600	9430	325	8270
31	--	--	--	12800	360	12400	--	--	--
TOTAL	447100	--	613060	432700	--	537100	409820	--	909280

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	9080	265	6500	10990	272	8000	9500	202	5180
2	8650	230	5370	11000	263	7810	9980	198	5340
3	8380	195	4410	11100	240	7190	10100	191	5210
4	8280	180	4020	11000	222	6590	9900	220	5880
5	8060	180	3920	10700	220	6360	10100	301	8210
6	7740	181	3780	10400	218	6120	9100	242	5920
7	7800	181	3810	10300	212	5900	9480	200	5120
8	7900	185	3950	10200	205	5650	9750	201	5290
9	7960	190	4080	10200	211	5810	9630	208	5410
10	8020	191	4140	10300	220	6120	9780	210	5550
11	7920	211	4510	10300	199	5530	10100	270	7360
12	7980	365	7860	10400	201	5640	9730	290	7620
13	8200	535	11800	10200	239	6580	9630	240	6240
14	7700	408	8480	10700	380	11000	9700	205	5370
15	8120	300	6580	10700	580	17100	9730	210	5520
16	9680	468	12200	11000	545	16200	9980	265	7140
17	9900	540	14400	10900	360	10600	9350	205	5180
18	9500	482	12400	11100	260	7790	8730	150	3540
19	9550	450	11600	11200	240	7260	8680	200	4690
20	9880	440	11700	11300	250	7630	8550	190	4390
21	10200	430	11800	11400	300	9230	9000	230	5590
22	10400	420	11800	11300	310	9460	9030	300	7310
23	10300	430	12000	11600	290	9080	8830	310	7390
24	10300	685	19000	12000	560	18100	9030	350	8530
25	10200	525	14500	12900	1110	38700	8450	275	6270
26	10200	238	6550	12900	1460	50900	8550	200	4620
27	10800	370	10800	12200	1240	40800	8700	210	4930
28	11400	765	23500	10900	778	22900	8980	223	5410
29	10900	530	15600	10300	350	9730	8880	190	4560
30	11000	285	8460	10100	239	6520	8730	130	3060
31	10900	270	7950	10100	218	5940	--	--	--
TOTAL	286900	--	287470	339800	--	382240	279680	--	171830

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 4313830
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 5110910

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MONT.

LOCATION.--Lat 45°06'43", long 110°47'37", in SE¼NW¼ sec.30, T.8 S., R.8 E., Park County, at gaging station at highway bridge at Corwin Springs, 1.3 miles upstream from Mol Herron Creek, 7 miles northwest of Gardiner, and at mile 530.5.

DRAINAGE AREA.--2,623 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
21...	1415	1790	14	4.7	17	34	9.6	.6	178	.24	860
JAN.											
25...	0820	854	23	7.1	28	48	18	1.0	218	.30	503
APR.											
24...	1530	1560	17	5.8	20	32	12	.8	182	.25	767
JULY											
25...	1530	5810	8.7	3.1	11	16	5.0	.5	98	.13	1540
AUG.											
24...	1530	3270	12	4.0	16	22	7.0	.7	150	.20	1320
SEP.											
26...	1300	2280	15	5.3	19	31	9.2	.8	156	.21	960

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
21...	1415	1790	20	0	320	0	1	1	.00
JAN.									
25...	0820	854	30	0	630	0	0	4	.00
APR.									
24...	1530	1560	10	0	380	1	0	1	.00

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
21...	1415	1790	.00	.00	.0	.00	.00	.00
FEB.								
24...	0915	808	.00	.00	.0	.00	.00	.00
APR.								
24...	1530	1560	.00	.00	.0	.00	.00	.00

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
21...	1415	8.0	11.5	200	11.4	8.0	54	--	30
JAN.									
25...	0820	.0	-22.0	300	12.0	7.7	--	--	42
APR.									
24...	1530	9.0	18.5	240	11.4	8.4	--	--	6
JULY									
25...	1530	16.0	25.5	150	8.6	7.5	42	820	30
AUG.									
24...	1530	17.0	23.5	180	9.2	7.6	51	210	4
SEP.									
26...	1300	9.0	12.0	220	11.0	7.3	49	360	4

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06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1969 to July 1970, October 1970 to April 1972 (partial-record station), July to September 1972.

REMARKS.--Flow affected by natural storage in Yellowstone Lake.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
21...	54	1.0	.09	.07	--	--	--	--	.060	.7
JAN.										
25...	87	1.3	.34	.29	--	--	--	--	.11	1.6
APR.										
24...	66	1.1	.13	.07	--	--	--	--	.070	1.1
JULY										
25...	34	.8	--	--	--	--	--	--	--	1.2
AUG.										
24...	46	1.0	--	--	--	--	--	--	--	.8
SEP.										
26...	59	1.1	--	--	--	--	--	--	--	1.6

DATE	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.								
21...	0	20	.1	0	3	4	0	10
JAN.								
25...	2	40	.3	3	2	1	1	8
APR.								
24...	5	20	.0	0	6	2	0	10

DATE	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.							
21...	.00	.00	.00	.00	.00	.00	.00
FEB.							
24...	.00	.00	.00	.00	.00	.00	.00
APR.							
24...	.00	.00	.00	.00	.00	.00	.00

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MONT.

LOCATION.--Lat 45°35'50", long 110°33'55", in NE¼NW¼NW¼ sec.12, T.3 S., R.9 E., Park County, at gaging station at bridge on former U.S. Highway 89, 2 miles downstream from Suce Creek, 4 miles south of Livingston, and at mile 481.3.

DRAINAGE AREA.--3,551 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1972.
Water temperatures: October 1969 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 216 mg/l Jan. 1-31; minimum, 68 mg/l June 1-13.
Hardness: Maximum, 99 mg/l Jan. 1-31; minimum, 33 mg/l June 1-13.
Specific conductance: Maximum daily, 337 micromhos Jan. 26; minimum daily, 87 micromhos June 6.
Water temperatures: Maximum, 21.0°C Aug. 17; minimum, freezing point on several days during December to February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	2640	--	22	0	20	6.4	16	3.7	98	0	25
NOV.												
01-30	--	2160	--	24	0	21	6.7	17	4.8	103	0	30
DEC.												
01-31	--	1600	--	27	0	25	7.7	17	4.4	111	0	35
JAN.												
01-31	--	1420	--	31	20	26	8.3	22	5.1	122	0	50
FEB.												
01-29	--	1410	--	29	10	26	7.6	21	5.2	116	0	39
MAR.												
01-14	--	1420	--	29	10	26	7.9	21	5.6	113	0	45
15-31	--	1890	--	25	20	21	6.3	18	4.6	99	0	33
APR.												
01-30	--	1970	--	23	20	20	6.5	17	4.1	106	0	31
MAY												
01-14	--	3380	--	21	60	17	5.3	12	2.9	84	0	20
15-31	--	9880	--	18	60	12	3.4	8.6	1.8	59	0	10
JUNE												
01-13	--	23000	--	15	20	9.2	2.5	4.9	1.4	46	0	11
14-30	--	17600	--	15	20	9.6	2.9	7.5	1.6	49	0	10
JULY												
01-12	--	12000	--	16	20	11	3.4	8.9	2.0	56	0	14
13-31	--	7540	--	16	10	13	4.0	11	2.2	64	0	18
AUG.												
01-12	--	5040	--	18	10	15	4.8	11	2.6	74	0	18
13-31	--	3940	--	19	10	17	5.2	13	2.9	80	0	19
SEP.												
01-30	--	3440	--	20	20	18	5.6	13	3.3	86	0	22
WTD. AVG.	--	--	--	19	21	14	4.3	11	2.6	70	0	18
TIME WTD. AVG.	--	4730	--	23	16	19	6.0	15	3.7	92	0	28
TONS PER DAY	--	--	--	237	0	183	55	135	33	892	0	233

ANALYSES OF ADDITIONAL SAMPLES

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
20...	1930	2580	7.5	23	20	20	6.4	16	3.5	95	0	34
JAN.												
25...	1220	1250	.0	32	120	28	8.9	21	5.6	131	0	41
APR.												
25...	1215	1990	8.5	22	40	20	6.4	17	4.4	97	0	28
JULY												
25...	1150	6350	15.5	17	30	13	4.3	11	2.4	65	0	15

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
20...	1930	2580	.050	240	0
NOV.					
23...	0830	1950	.050	--	--
DEC.					
29...	1100	1070	.040	--	--
JAN.					
25...	1220	1250	.15	410	10
FEB.					
23...	1800	1450	.030	--	--
MAR.					
23...	0800	1940	.040		--

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 216 mg/l Jan. 1-31, 1972; minimum, 68 mg/l June 1-13, 1972.
Hardness: Maximum, 99 mg/l Jan. 1-31, 1972; minimum, 33 mg/l June 1-13, 1972.
Specific conductance: Maximum daily, 398 micromhos Apr. 3, 1970; minimum daily, 87 micromhos June 23, 25, 1970, June 21, 22, 1971, June 6, 1972.
Water temperatures: Maximum observed, 21.0°C Aug. 6, 7, 11, 16, 1970, Aug. 17, 1972; minimum, freezing point on several days during winter periods.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Hardness, 110 mg/l Jan. 25. Flow affected by natural storage in Yellowstone Lake and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	7.6	.6	.02	--	150	.20	1070	76	0	.8	235	8.0
NOV.												
01-30	9.1	.7	.00	--	164	.22	956	80	0	.8	249	8.0
DEC.												
01-31	11	.8	.17	--	183	.25	791	94	3	.8	282	8.1
JAN.												
01-31	11	.8	.29	--	216	.29	829	99	0	1.0	299	7.9
FEB.												
01-29	11	.8	.18	.000	197	.27	750	96	1	.9	301	8.1
MAR.												
01-14	12	.9	.13	.040	204	.28	782	97	5	.9	304	8.0
15-31	9.9	.9	.03	.040	168	.23	857	78	0	.9	250	7.8
APR.												
01-30	7.9	.7	.01	.000	162	.22	862	77	0	.8	253	7.9
MAY												
01-14	5.4	.7	.06	.000	126	.17	1150	64	0	.7	190	7.6
15-31	2.4	.4	.00	.000	84	.11	2240	44	0	.4	120	7.5
JUNE												
01-13	1.0	.5	.00	.010	68	.09	4220	33	0	.4	93	6.8
14-30	3.0	.6	.01	.010	74	.10	3520	36	0	.5	108	6.4
JULY												
01-12	3.5	.4	.00	.010	87	.12	2820	41	0	.6	126	7.5
13-31	4.3	.4	.01	.010	100	.14	2040	49	0	.7	152	7.8
AUG.												
01-12	5.9	.6	.02	.000	112	.15	1520	57	0	.6	175	7.5
13-31	5.8	.6	.00	.010	122	.17	1300	64	0	.7	195	7.5
SEP.												
01-30	6.5	.6	.00	.000	131	.18	1220	68	0	.7	208	7.9
WTD. AVG.	4.7	.6	.03	--	108	.15	--	53	0	.6	162	7.3
TIME WTD. AVG.	7.5	.7	.07	--	148	.20	--	73	1	.8	223	7.8
TONS PER DAY	60	7.2	.32	--	1380	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
OCT.												
20...	8.0	.5	.09	--	159	.22	1110	76	0	.8	230	7.9
JAN.												
25...	12	.8	.39	--	216	.29	729	110	0	.9	327	7.7
APR.												
25...	8.7	.8	.04	.000	156	.21	838	76	0	.8	243	8.3
JULY												
25...	4.0	.5	.18	.010	100	.14	1710	50	0	.7	151	7.4

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
APR.					
25...	1215	1990	.040	320	20
MAY					
25...	0815	8250	.050	--	--
JUNE					
27...	0830	15100	.040	--	--
JULY					
25...	1150	6350	.040	160	0
AUG.					
24...	1100	3960	.19	--	--
SEP.					
26...	1715	3030	.060	--	--

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	236	246	306	316	306	253	204	103	115	179	205
2	229	236	260	300	311	309	253	214	90	119	163	198
3	224	236	270	297	311	309	258	216	89	119	174	219
4	221	236	257	300	312	309	247	214	90	122	170	211
5	222	236	262	326	312	306	258	202	101	127	170	219
6	221	236	260	326	307	306	247	224	87	126	174	205
7	221	236	262	307	302	306	241	181	90	127	174	189
8	219	236	304	300	302	306	247	177	88	127	179	189
9	222	236	290	300	301	309	247	184	114	145	174	189
10	222	236	301	300	304	306	241	177	89	127	179	194
11	222	236	286	300	305	306	247	177	88	132	174	194
12	222	236	280	300	305	306	253	178	89	132	191	186
13	229	239	280	300	305	294	241	180	95	145	185	194
14	240	238	280	300	305	283	247	180	107	136	180	201
15	221	238	280	300	305	262	247	158	102	140	185	201
16	224	236	280	300	302	262	241	150	106	145	188	209
17	229	238	280	300	303	258	247	124	95	143	185	209
18	229	238	280	300	305	253	247	137	98	146	187	205
19	234	239	280	300	296	247	241	116	101	143	194	209
20	229	236	280	289	309	240	247	117	116	146	194	205
21	222	238	280	278	302	240	247	112	111	145	191	205
22	222	238	280	289	302	238	253	117	114	154	191	205
23	229	239	280	289	306	240	247	125	107	154	194	209
24	238	243	283	278	308	234	247	138	111	154	196	211
25	238	248	283	319	305	236	240	133	116	154	193	205
26	234	239	283	337	314	238	236	133	113	154	193	214
27	229	238	283	328	308	247	238	134	115	155	193	211
28	234	238	283	326	308	247	229	118	120	155	196	211
29	240	239	306	329	302	253	221	109	111	157	196	211
30	247	239	306	317	---	247	213	108	117	160	227	219
31	247	---	298	312	---	247	---	92	---	160	298	---
MONTH	229	238	280	305	306	273	244	156	102	141	186	204
YEAR	222											

06197500 BOULDER RIVER NEAR CONTACT, MONT.

LOCATION (revised).--Lat 45°33'17", long 110°12'00", in NW¼SE¼SE¼ sec.23, T.3 S., R.12 E., Sweet Grass County, 0.7 mile downstream from Contact Creek, 3.7 miles upstream from gaging station, 9.7 miles upstream from East Fork, and 11.1 miles southwest of McLeod.

DRAINAGE AREA.--226 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1970 to September 1972 (partial-record station).
Water temperatures: March to September 1971.
Sediment records: March 1971 to September 1972.

EXTREMES.--1971-72:
Sediment concentrations: Maximum daily, 80 mg/l June 8; minimum daily, 1 mg/l on many days during October to January, March and April.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
JAN.												
31...	1630	62	.0	0	0	0	0	0	1	0	0	2
APR.												
24...	1530	77	8.0	0	0	0	0	20	0	0	0	10
JUNE												
05...	1425	2620	6.5	30	0	0	0	20	0	0	1	7

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	3.0	1.5	1.5	0.0	4.5	8.0	10.5	10.5	14.5	18.0	16.0
2	9.5	3.5	1.0	0.0	0.0	5.0	8.0	10.5	10.0	12.0	16.0	17.5
3	10.5	4.0	2.0	0.0	1.0	9.0	9.0	12.5	10.5	13.0	18.5	16.5
4	11.0	5.0	2.0	0.0	1.5	4.5	8.5	11.0	11.0	15.5	19.0	16.5
5	13.0	4.0	1.0	1.0	2.5	7.0	9.0	12.0	12.0	16.0	19.0	14.0
6	13.0	3.5	0.5	1.5	3.0	6.0	10.0	9.5	12.5	16.0	19.0	14.5
7	13.0	4.0	0.5	1.5	3.0	6.0	9.0	9.0	11.0	17.0	20.0	14.5
8	12.5	4.5	0.5	1.5	2.5	7.5	7.5	9.5	11.0	17.5	19.5	14.5
9	12.5	6.0	0.0	1.0	3.0	9.0	9.0	12.5	11.0	15.5	19.0	15.0
10	13.0	6.0	0.5	1.5	2.0	10.5	8.5	11.5	11.0	17.0	20.5	12.0
11	12.5	6.5	1.0	2.0	2.5	9.0	9.0	10.5	11.0	15.0	18.5	13.5
12	12.0	7.5	0.5	1.5	3.0	9.5	9.0	11.5	11.5	16.0	18.5	14.0
13	11.0	6.0	1.0	0.0	2.0	10.5	8.0	14.0	12.0	18.0	19.0	15.0
14	8.5	6.0	0.0	1.0	3.0	8.0	9.0	13.5	12.5	17.0	20.0	14.0
15	7.5	5.5	1.0	2.0	2.5	10.5	10.0	14.5	11.5	17.5	19.0	14.0
16	5.0	5.0	0.5	3.0	4.0	12.0	9.0	12.5	12.0	16.5	19.5	15.0
17	7.5	4.0	1.0	2.0	3.0	12.0	8.0	11.0	12.5	17.0	21.0	14.0
18	7.0	3.0	2.5	0.0	9.0	10.5	6.0	11.0	9.0	16.0	20.0	15.0
19	7.0	3.0	2.0	2.5	9.0	9.0	8.5	9.0	11.0	12.0	16.5	11.0
20	7.0	4.0	1.5	3.0	9.0	10.0	8.0	10.0	11.5	12.5	18.0	11.0
21	9.0	4.5	2.0	3.0	3.5	9.0	9.0	10.5	12.0	14.0	18.0	12.0
22	9.0	4.0	3.0	3.0	4.5	10.5	10.0	10.0	12.5	15.0	17.5	12.5
23	9.0	3.0	3.5	0.0	3.5	8.0	10.0	9.0	11.5	16.5	14.5	11.0
24	8.0	4.0	4.0	0.0	3.0	8.0	11.0	10.0	11.5	16.0	17.0	10.0
25	8.5	4.5	0.0	0.0	4.0	4.5	10.0	9.0	11.5	17.5	17.5	9.0
26	7.5	3.5	0.0	0.0	1.5	4.0	12.0	10.0	11.0	16.0	18.0	9.0
27	4.0	3.0	0.5	0.0	4.0	7.0	11.0	12.0	12.5	17.0	18.0	8.0
28	1.0	3.5	0.0	0.5	5.5	6.0	14.0	12.5	15.5	17.0	19.5	8.0
29	2.0	4.0	1.0	2.0	6.0	5.5	10.5	12.0	15.5	19.5	16.5	9.0
30	2.0	3.5	1.0	1.5	---	6.5	9.0	13.5	19.5	18.0	17.5	9.5
31	3.0	---	0.5	1.0	---	9.5	---	11.0	---	18.0	19.0	---
MONTH	8.5	4.5	1.0	1.0	3.0	8.0	9.5	11.0	12.0	16.0	18.5	13.0
YEAR	9.0											

06197500 BOULDER RIVER NEAR CONTACT, MONT.--Continued

EXTREMES, 1971-72.--Continued

Sediment discharge: Maximum daily, 708 tons June 8; minimum daily, 0.16 ton Mar. 8.

Period of record:

Water temperatures: (1970-71) maximum observed, 13.5°C Aug. 25, 1971; minimum, freezing point on several days during winter period.

Sediment concentrations: Maximum daily, 139 mg/l June 23, 1971; minimum daily, 1 mg/l on many days during 1971-72.

Sediment discharge: Maximum daily, 1,740 tons June 23, 1971; minimum daily, 0.14 ton Mar. 22, 1971.

REMARKS.--Water temperature data erroneous and not published. Flow not regulated upstream from sampling site. Flow affected by ice on several days during December and January.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JAN. 31...	40	3	4.0	0	.0	5	4	4	2	70	.5	10
APR. 24...	30	4	4.3	10	.0	0	6	2	0	60	.4	10
JUNE 05...	40	3	1.5	0	.4	0	2	4	0	50	.0	0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
JUNE 05...	1200	6.5	2570	54	379	50	66	95	100

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	148	3	1.2	122	3	.99	76	12	2.5
2	140	3	1.1	115	2	.62	71	21	4.0
3	150	3	1.2	111	3	.90	90	4	.97
4	155	3	1.3	113	13	4.0	90	2	.49
5	160	3	1.3	108	4	1.2	79	1	.21
6	155	3	1.3	100	4	1.1	92	2	.50
7	155	3	1.3	108	2	.58	85	3	.69
8	150	3	1.2	105	3	.85	85	6	1.4
9	145	3	1.2	102	2	.55	85	5	1.1
10	145	2	.78	100	4	1.1	96	4	1.0
11	140	2	.76	98	8	2.1	94	4	1.0
12	140	2	.76	100	1	.27	92	4	.99
13	155	3	1.3	102	1	.28	94	4	1.0
14	170	2	.92	98	1	.26	88	3	.71
15	165	2	.89	96	3	.78	90	6	1.5
16	160	2	.86	94	4	1.0	88	4	.95
17	155	3	1.3	94	9	2.3	87	4	.94
18	145	3	1.2	83	11	2.5	90	3	.73
19	140	3	1.1	87	2	.47	90	3	.73
20	135	2	.73	100	2	.54	87	3	.70
21	130	2	.70	94	2	.51	85	2	.46
22	125	2	.68	94	2	.51	85	3	.69
23	125	2	.68	89	6	1.4	88	3	.71
24	120	2	.65	94	3	.76	85	3	.69
25	120	2	.65	94	3	.76	85	3	.69
26	117	3	.95	88	2	.48	80	3	.65
27	111	4	1.2	96	2	.52	80	2	.43
28	81	1	.22	90	2	.49	78	3	.63
29	69	1	.19	94	3	.76	81	2	.44
30	85	2	.46	94	3	.76	81	2	.44
31	115	3	.93	--	--	--	72	3	.58
TOTAL	4206	--	29.01	2963	--	29.34	2649	--	28.52

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	78	4	.84	66	3	.53	62	2	.33
2	76	5	1.0	62	3	.50	57	2	.31
3	72	4	.78	62	2	.33	62	2	.33
4	74	2	.40	60	2	.32	56	2	.30
5	76	2	.41	62	2	.33	57	2	.31
6	79	5	1.1	62	2	.33	64	2	.35
7	78	4	.84	62	2	.33	56	2	.30
8	74	2	.40	62	2	.33	59	1	.16
9	72	1	.19	60	2	.32	62	2	.33
10	71	1	.19	54	2	.29	59	2	.32
11	69	1	.19	62	2	.33	72	2	.39
12	69	2	.37	62	2	.33	69	2	.37
13	68	2	.37	62	4	.67	69	2	.37
14	69	2	.37	60	4	.65	76	2	.41
15	66	2	.36	60	4	.65	69	2	.37
16	67	2	.36	64	4	.69	69	2	.37
17	67	2	.36	62	4	.67	76	2	.41
18	67	2	.36	64	4	.69	79	2	.43
19	67	2	.36	66	3	.53	81	2	.44
20	67	2	.36	66	3	.53	79	2	.43
21	69	2	.37	64	3	.52	78	2	.42
22	66	3	.53	64	3	.52	78	3	.63
23	64	4	.69	63	3	.51	85	5	1.1
24	55	2	.30	57	3	.46	81	4	.87
25	58	2	.31	56	4	.60	81	4	.87
26	62	2	.33	54	2	.29	78	4	.84
27	64	6	1.0	64	2	.35	71	3	.58
28	72	4	.78	66	2	.36	67	3	.54
29	69	4	.75	71	2	.38	66	3	.53
30	64	3	.52	--	--	--	76	2	.41
31	62	3	.50	--	--	--	71	2	.38
TOTAL	2131	--	15.69	1799	--	13.34	2165	--	14.29

06197500 BOULDER RIVER NEAR CONTACT, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	69	2	.37	135	2	.73	2340	71	449
2	69	2	.37	131	2	.71	2540	72	498
3	64	1	.17	130	2	.75	2630	54	383
4	67	1	.18	143	2	.88	2700	52	379
5	69	1	.19	187	2	1.0	2640	51	364
6	76	1	.21	187	2	1.0	2780	54	405
7	83	1	.22	184	6	3.0	2990	73	630
8	79	1	.21	187	2	1.0	3200	80	708
9	76	1	.21	187	3	1.5	3150	69	587
10	74	2	.40	214	5	2.9	2870	64	496
11	72	2	.39	210	5	2.9	2950	66	526
12	74	2	.40	200	6	3.4	2600	37	260
13	72	2	.39	200	5	2.8	2110	46	262
14	71	2	.38	200	9	7.0	1930	29	151
15	71	2	.38	437	12	14	2040	32	176
16	72	2	.39	622	11	18	1990	34	183
17	74	2	.40	872	13	31	2220	44	264
18	74	2	.40	1010	15	41	2340	45	294
19	69	2	.37	1020	12	33	1960	36	191
20	72	2	.39	910	9	22	1950	28	117
21	74	2	.40	1000	14	38	1580	33	122
22	76	2	.41	902	11	27	1510	36	147
23	72	2	.39	762	7	14	1910	49	253
24	76	2	.41	680	7	13	2030	12	72
25	87	2	.47	674	19	35	1640	11	49
26	88	2	.48	616	7	12	1350	12	44
27	98	2	.49	642	4	6.9	1210	11	36
28	105	3	.85	820	9	20	1190	10	32
29	140	3	1.1	1080	9	26	1460	16	63
30	140	3	1.2	1490	26	108	1580	23	85
31	--	--	--	2020	58	316	--	--	--
TOTAL	2403	--	12.62	18280	--	804.67	65030	--	8218

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1510	21	86	464	3	3.8	200	3	1.6
2	1340	8	29	464	3	3.8	190	2	1.0
3	1020	7	19	432	3	3.5	184	2	.99
4	880	5	12	376	2	2.0	175	2	.95
5	910	5	12	350	2	1.9	169	2	.91
6	980	5	13	330	2	1.8	267	3	2.2
7	1080	4	12	315	2	1.7	274	2	1.5
8	1060	4	11	310	2	1.7	229	2	1.2
9	1000	3	8.1	301	2	1.6	211	2	1.1
10	910	3	7.4	280	2	1.6	249	2	1.3
11	850	3	6.9	280	2	1.6	320	3	2.6
12	805	3	6.5	274	2	1.5	371	4	4.0
13	820	3	6.7	270	3	2.2	310	2	1.7
14	820	3	6.7	315	4	3.4	274	2	1.5
15	714	3	5.8	315	4	3.4	249	2	1.3
16	648	12	22	274	3	2.2	229	2	1.2
17	636	10	17	253	3	2.0	214	2	1.2
18	590	8	13	237	2	1.3	200	2	1.1
19	603	6	9.8	229	2	1.2	218	3	1.8
20	554	5	7.5	245	3	2.0	270	4	2.9
21	616	6	10	225	3	1.8	225	2	1.2
22	536	9	13	214	3	1.7	229	2	1.2
23	670	3	5.8	257	11	7.6	225	2	1.2
24	664	4	5.0	315	12	10	218	2	1.2
25	476	4	5.1	245	8	5.3	214	2	1.2
26	470	4	5.1	229	6	3.7	200	2	1.1
27	464	4	5.0	211	4	2.3	255	2	1.3
28	448	4	4.8	200	3	1.6	225	2	1.2
29	426	3	3.5	197	3	1.6	211	2	1.1
30	420	3	3.4	200	3	1.6	214	2	1.2
31	482	3	3.9	211	3	1.7	--	--	--
TOTAL	23030	--	374.0	8834	--	83.1	7013	--	43.95

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 140431
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 9686.24

06202610 STILLWATER RIVER AT BEEHIVE, MONT.

LOCATION.--Lat 45°28'40", long 109°43'36", in NE¼NE¼NE¼ sec.22, T.4 S., R.16 E., Stillwater County, on private bridge 0.4 mile west of Beehive, 1.7 miles downstream from Magpie Creek and 4.5 miles northeast of Nye.

DRAINAGE AREA.--371 sq mi (revised).

PERIOD OF RECORD.--Chemical analyses: October 1970 to September 1972.
Water temperatures: October 1970 to September 1972.
Sediment records: October 1970 to September 1972.

EXTREMES.--1971-72:
Water temperatures: Maximum, 18.0°C Aug. 16, 18, 27; minimum, freezing point Jan. 2, 25.
Turbidity: Maximum, 4 JTU Apr. 5, May 19, 31; minimum, 0 JTU on many days during entire year.
Sediment concentrations: Maximum daily, 98 mg/l May 31; minimum daily, 1 mg/l on many days during entire year.
Sediment discharge: Maximum daily, 699 tons May 31; minimum daily, 0.27 ton Jan. 25.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
OCT.												
07...	1200	310	9.0	7.7	10	18	17	5.8	2.9	.8	74	—
NOV.												
18...	1030	173	.5	8.4	10	0	23	7.6	3.8	1.0	94	0
DEC.												
15...	1030	151	.0	9.6	10	0	25	8.2	4.1	1.0	99	0
JAN.												
20...	1230	128	.0	9.5	10	10	28	8.2	3.9	1.5	97	—
FEB.												
18...	1030	109	1.0	9.6	30	10	24	8.0	3.9	.5	96	0
MAR.												
23...	1045	130	6.5	12	20	0	23	7.3	3.9	1.0	88	0
APR.												
19...	1430	100	8.5	9.6	20	0	22	7.2	4.2	1.0	97	0
MAY												
23...	1630	1080	9.0	7.2	30	0	18	2.9	1.0	.5	40	0
JUNE												
05...	1315	3640	8.5	—	50	0	—	1.6	—	—	—	—
JULY												
12...	0930	1330	9.0	4.7	20	21	7.7	2.4	1.1	.4	31	0
AUG.												
10...	0915	660	12.0	5.6	70	0	5.2	3.6	5.4	1.2	45	0
SEP.												
11...	1215	724	8.0	5.6	20	0	9.9	3.2	1.8	.5	41	0

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
OCT.							
07...	1200	9.0	14.5	150	8.6	—	—
NOV.							
18...	1030	.5	2.0	210	—	7.4	78
DEC.							
15...	1030	.0	-3.0	180	12.0	—	—
JAN.							
20...	1230	.0	-12.0	200	12.0	8.0	81
FEB.							
18...	1030	1.0	6.0	270	12.0	7.7	79
MAR.							
23...	1045	6.5	12.0	195	10.2	8.2	71
APR.							
19...	1430	8.5	3.0	195	10.3	7.7	67
MAY							
23...	1630	9.0	14.5	80	9.8	6.9	33
JUNE							
05...	1315	8.5	23.5	50	10.0	7.5	19
JULY							
12...	0930	9.0	16.5	70	9.8	7.7	26
AUG.							
10...	0915	12.0	22.5	80	9.3	6.9	36
SEP.							
11...	1215	8.0	12.5	80	9.4	7.7	34

06202610 STILLWATER RIVER AT BEEHIVE, MONT.--Continued

EXTREMES.--Continued

Period of record:
Water temperatures: Maximum, 19.5°C Aug. 27, 1971; minimum, freezing point on many days during winter periods most years.
Turbidity: Maximum, 7 JTU June 23, 1971; minimum, 0 JTU on many days during 1971-72.
Sediment concentrations: Maximum daily, 146 mg/l June 10, 1971; minimum daily, 1 mg/l on many days during 1971-72.
Sediment discharge: Maximum daily, 1,360 tons June 23, 1971; minimum daily, 0.19 ton Apr. 5, 1971.

REMARKS.--Records of discharge are given for station 06202600, Stillwater River at Nye. Flow affected by ice during most of winter months. Flow at times affected by diversions for irrigation upstream from sampling site.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PH (UNITS)
OCT.												
07...	15	.4	.1	.03	.010	88	.12	73.7	—	—	.2	8.2
NOV.												
18...	19	.4	.2	.09	.000	110	.15	51.4	89	12	.2	7.9
DEC.												
13...	30	2.5	.1	.13	.010	130	.18	53.0	96	15	.2	7.8
JAN.												
20...	22	1.6	.1	.16	.000	123	.17	42.5	100	24	.2	7.7
FEB.												
18...	23	.7	.2	.11	.000	119	.16	35.0	93	12	.2	8.1
MAR.												
23...	22	.7	.2	.07	.030	115	.16	40.4	87	15	.2	8.0
APR.												
19...	22	1.8	.2	.10	.010	116	.16	31.3	85	5	.2	8.0
MAY												
23...	8.7	1.1	.1	.04	.030	51	.07	149	37	4	.1	7.5
JUNE												
05...	—	—	—	—	—	—	—	—	—	—	—	7.1
JULY												
12...	5.8	1.0	.4	.21	.000	40	.05	144	29	4	.1	7.9
AUG.												
10...	9.6	.7	.4	.03	.000	54	.07	96.2	28	0	.4	7.7
SEP.												
11...	9.4	1.8	.1	.07	.000	53	.07	104	38	4	.1	7.6

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)
OCT.										
07...	1200	310	100	0	0	0	10	0	0	1
JAN.										
20...	1230	128	0	2	0	0	20	1	2	0
JUNE										
05...	1315	3640	20	0	0	0	10	0	0	1
JULY										
12...	0930	1330	2	1	0	0	10	0	0	1

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.										
07...	2	1	0	.2	1	2	0	110	.0	0
JAN.										
20...	3	4	2	.2	2	4	0	140	.9	20
JUNE										
05...	13	3	0	.1	4	4	0	29	2.3	20
JULY										
12...	4	2	0	.2	2	1	0	70	.2	0

06202610 STILLWATER RIVER AT BEEHIVE, MONT.--Continued

TURBIDITY (JACKSON TURBIDITY UNITS), WATER YEAR OCTOBER 1970 TO SEPTEMBER 1971
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	0	0	0	0	0	0	0	0	1	0	0
2	0	0	0	0	0	0	0	0	0	1	0	0
3	0	0	0	0	0	0	0	0	0	1	0	0
4	0	0	0	0	0	0	0	0	1	0	1	0
5	0	0	1	0	0	0	0	1	0	0	0	0
6	0	0	0	0	0	0	0	1	0	1	0	0
7	0	0	0	0	0	0	0	1	0	0	0	0
8	0	0	1	0	0	0	0	0	1	0	0	0
9	0	0	0	0	0	0	0	0	1	1	0	0
10	0	0	1	0	0	0	0	0	1	0	0	0
11	0	0	0	0	0	0	0	0	1	1	0	0
12	0	0	1	0	0	0	0	0	1	1	0	1
13	0	0	0	0	0	0	0	0	1	0	0	0
14	0	0	0	0	0	0	0	1	1	0	0	0
15	0	0	0	0	0	0	0	1	1	1	---	0
16	0	0	0	0	0	0	0	1	0	1	0	0
17	0	0	0	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	0	0	1	0	0	0	0
19	1	0	0	0	0	0	0	1	1	0	0	0
20	0	0	0	0	0	0	0	0	0	1	0	0
21	0	0	0	0	0	0	0	1	1	0	0	0
22	0	0	0	0	0	0	1	1	3	1	0	0
23	0	0	0	0	0	0	1	0	7	0	0	0
24	0	0	0	0	0	0	1	0	1	1	0	0
25	0	0	0	0	0	0	3	0	1	0	0	0
26	0	0	0	0	0	0	2	0	0	1	0	0
27	0	0	0	0	0	0	1	1	1	0	1	0
28	0	0	0	0	0	0	1	1	0	0	0	0
29	0	0	0	0	---	0	1	1	0	1	0	1
30	0	0	0	0	---	0	1	3	0	0	0	0
31	0	---	0	0	---	0	---	1	---	---	0	---
MONTH	0	0	0	0	0	0	0	0	0	0	0	0
YEAR	0											

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	1.5	1.5	2.0	2.0	2.0	9.0	11.5	9.0	10.0	12.0	9.0
2	9.0	4.0	0.5	0.0	2.0	2.0	6.0	15.0	11.0	8.0	12.0	11.0
3	9.0	4.0	3.0	1.0	3.0	4.0	6.0	10.0	12.0	---	11.0	10.0
4	9.5	4.0	0.5	---	3.0	3.0	5.0	12.0	9.0	10.0	12.0	9.0
5	13.0	3.0	1.5	1.0	2.5	9.5	8.0	8.0	11.0	15.0	12.0	12.0
6	14.0	1.0	1.0	2.0	3.0	5.0	9.0	6.0	13.0	10.0	13.0	12.0
7	13.0	4.0	0.5	2.0	1.0	1.0	8.5	3.5	11.0	10.0	15.0	9.5
8	6.5	3.0	0.5	1.0	1.5	3.5	8.0	6.5	19.0	16.0	16.0	10.0
9	13.0	5.0	0.5	1.0	2.0	7.5	8.0	11.0	10.0	16.0	15.5	14.0
10	12.0	5.0	1.0	1.0	2.5	6.5	8.0	7.0	11.0	13.0	16.0	10.0
11	11.0	5.5	0.5	1.5	1.0	6.5	10.5	10.0	10.0	13.0	13.0	12.0
12	9.0	6.0	1.0	1.0	2.0	5.5	9.0	12.0	7.0	14.0	14.0	10.0
13	8.0	5.0	2.0	2.0	2.0	7.0	7.0	5.5	7.0	15.0	17.0	12.0
14	7.5	4.5	2.0	1.0	3.0	6.0	4.0	10.0	12.0	13.0	16.0	14.0
15	5.5	4.0	2.5	2.5	1.5	6.0	6.0	15.5	10.0	15.0	13.0	10.0
16	6.0	5.0	2.0	3.0	4.0	8.0	7.0	13.0	12.0	14.0	18.0	13.0
17	5.0	4.0	3.5	2.0	3.0	7.0	6.0	13.0	12.0	15.0	13.0	13.0
18	5.5	3.5	3.0	0.5	4.0	9.0	5.0	9.0	10.0	12.0	10.0	9.5
19	7.0	2.0	2.0	1.0	4.0	10.5	5.0	7.0	8.0	8.5	14.0	10.0
20	8.0	5.5	2.5	0.5	3.5	10.0	5.0	6.0	10.0	8.0	15.0	11.0
21	5.5	4.5	2.5	3.5	3.0	8.0	7.0	10.5	11.0	8.5	12.0	12.0
22	7.5	5.0	3.0	1.0	4.0	7.0	7.0	9.0	12.0	13.5	14.0	11.0
23	7.0	4.0	2.0	1.0	3.0	7.0	7.0	10.0	10.0	15.0	11.0	---
24	7.0	5.5	3.0	0.5	2.0	6.0	8.0	10.5	8.5	16.0	14.0	7.0
25	8.0	4.0	3.0	0.0	1.5	5.5	9.0	9.0	---	14.0	12.0	3.0
26	7.0	3.0	2.0	1.0	2.0	3.0	11.0	11.0	8.0	11.0	17.0	8.0
27	2.0	3.0	1.0	1.0	4.5	6.0	12.0	13.0	8.0	14.0	18.0	7.0
28	1.0	1.0	0.5	1.5	5.0	4.0	10.5	9.0	9.0	11.0	14.0	7.0
29	0.0	2.0	2.0	2.0	4.5	4.0	10.5	11.0	10.0	14.5	14.0	3.0
30	1.0	3.0	1.0	2.0	---	4.0	7.0	14.0	14.0	14.0	13.0	11.0
31	2.0	---	2.0	2.0	---	---	---	7.0	---	12.0	12.0	---
MONTH	7.0	4.0	1.5	1.5	3.0	6.0	7.5	10.0	10.0	12.5	14.0	10.0
YEAR	7.0											

06202610 STILLWATER RIVER AT BEEHIVE, MONT.--Continued

TURBIDITY (JACKSON TURBIDITY UNITS), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0	1	0	0	1	0	1	1	1	1	1	1
2	0	0	1	0	1	1	0	1	1	1	0	1
3	1	1	0	0	1	0	1	2	2	--	0	1
4	1	1	1	--	0	0	0	1	2	1	0	1
5	--	0	1	1	1	1	4	1	1	1	0	1
6	1	0	1	0	1	0	1	1	1	1	0	1
7	0	0	1	1	1	1	1	1	1	1	0	1
8	0	1	1	1	0	0	1	1	2	0	0	1
9	1	1	1	1	1	1	1	1	1	1	0	1
10	1	1	1	1	1	1	1	1	1	0	0	1
11	0	0	1	1	1	1	1	1	1	0	0	1
12	0	1	1	0	1	1	1	1	1	0	0	1
13	1	1	0	1	1	1	0	1	1	0	0	1
14	1	1	1	1	1	1	0	1	1	1	0	1
15	1	1	1	1	1	1	0	1	1	0	1	1
16	1	0	1	0	0	1	0	1	1	1	1	1
17	0	0	1	1	1	1	1	2	1	0	0	1
18	0	0	0	1	1	0	0	1	1	0	0	1
19	0	1	0	0	0	1	0	4	1	1	0	1
20	1	1	1	1	0	0	1	2	1	1	1	1
21	0	1	1	0	0	0	3	2	1	1	1	1
22	0	1	1	0	1	1	1	1	1	1	0	1
23	0	0	1	1	0	0	1	1	2	1	0	--
24	1	1	1	1	0	0	0	1	1	1	1	1
25	1	0	1	0	0	1	1	1	--	1	0	1
26	1	1	0	0	0	0	1	1	1	0	1	1
27	0	1	1	0	1	0	0	1	1	1	1	1
28	0	1	0	0	0	1	1	1	1	0	0	1
29	1	0	0	1	1	0	1	1	1	1	0	1
30	0	0	0	1	--	1	1	1	1	1	0	1
31	0	--	0	0	--	0	--	4	--	1	1	--
MONTH	0	0	0	0	0	0	0	1	1	0	0	1
YEAR	0											

06202610 STILLWATER RIVER AT BEEHIVE, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	277	2	1.5	228	2	1.2	125	2	.68
2	282	3	2.3	214	2	1.2	135	2	.73
3	272	1	.73	209	2	1.1	150	2	.81
4	272	2	1.5	210	2	1.1	130	2	.70
5	282	2	1.5	210	2	1.1	140	2	.76
6	290	2	1.6	193	3	1.6	155	2	.84
7	305	2	1.6	209	2	1.1	150	2	.81
8	315	1	.85	201	2	1.1	120	2	.65
9	305	1	.82	193	2	1.0	130	2	.70
10	305	2	1.6	193	2	1.0	140	2	.76
11	310	1	.84	189	2	1.0	130	3	1.1
12	305	1	.82	180	2	.97	135	3	1.1
13	295	1	.80	170	4	1.8	145	9	3.5
14	300	1	.81	160	2	.86	155	7	2.9
15	305	1	.82	150	2	.81	150	2	.81
16	286	1	.77	140	2	.76	140	2	.76
17	290	1	.78	130	2	.70	160	2	.86
18	290	1	.78	150	2	.81	185	2	1.0
19	282	2	1.5	158	2	.85	175	3	1.4
20	268	1	.72	181	1	.49	165	2	.89
21	272	1	.73	181	3	1.5	145	3	1.3
22	264	1	.71	169	2	.91	162	4	1.7
23	254	1	.69	158	2	.85	154	5	2.1
24	254	1	.69	169	2	.91	144	2	.78
25	246	1	.66	165	2	.89	135	2	.73
26	236	1	.64	146	2	.79	120	3	.97
27	228	1	.62	165	3	1.3	125	3	1.0
28	185	2	1.0	154	3	1.2	130	4	1.4
29	177	1	.48	154	2	.83	140	2	.76
30	210	1	.57	154	2	.83	135	2	.73
31	228	2	1.2	--	--	--	135	3	1.1
TOTAL	8390	--	30.63	5275	--	30.56	4460	--	34.33

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	140	3	1.1	120	2	.65	115	3	.93
2	130	4	1.4	120	6	1.9	109	3	.88
3	125	3	1.0	125	2	.68	118	3	.96
4	130	3	1.1	130	3	1.1	103	2	.56
5	140	3	1.1	130	3	1.1	109	3	.88
6	150	3	1.2	130	3	1.1	118	4	1.3
7	160	4	1.7	130	3	1.1	103	2	.56
8	155	3	1.3	127	3	1.0	109	2	.59
9	150	2	.81	121	2	.65	112	3	.91
10	145	4	1.6	112	3	.91	109	3	.88
11	140	3	1.1	112	3	.91	118	3	.96
12	130	3	1.1	115	2	.62	118	3	.96
13	115	4	1.2	118	2	.64	112	3	.91
14	120	2	.65	112	3	.91	118	3	.96
15	125	4	1.4	109	2	.59	103	3	.83
16	130	5	1.8	115	2	.62	112	2	.60
17	125	2	.68	112	4	1.2	118	3	.96
18	125	3	1.0	109	4	1.2	124	2	.67
19	125	3	1.0	118	14	4.5	130	3	1.1
20	130	4	1.4	124	5	1.7	127	3	1.0
21	140	5	1.9	124	2	.67	121	3	.98
22	127	4	1.4	112	2	.60	118	3	.96
23	124	3	1.0	109	2	.59	127	2	.69
24	118	2	.64	106	7	2.0	118	3	.96
25	100	1	.27	103	2	.56	121	3	.98
26	90	2	.49	106	2	.57	109	4	1.2
27	100	2	.54	112	5	1.5	106	3	.86
28	115	2	.62	124	3	1.0	91	2	.49
29	125	2	.68	134	3	1.1	97	2	.52
30	130	2	.70	--	--	--	106	3	.86
31	125	2	.68	--	--	--	100	3	.81
TOTAL	3984	--	32.56	3419	--	31.67	3499	--	26.71

06202610 STILLWATER RIVER AT BEEHIVE, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	97	3	.79	189	3	1.5	3110	76	638
2	97	2	.52	185	2	1.0	3500	50	473
3	90	3	.73	189	3	1.5	3570	32	308
4	95	3	.77	218	3	1.8	3450	21	196
5	95	3	.77	254	4	2.7	3620	26	254
6	109	3	.88	268	3	2.2	3640	23	226
7	118	3	.96	259	3	2.1	3890	24	252
8	112	3	.91	250	2	1.4	4270	30	346
9	106	3	.86	246	3	2.0	4110	27	300
10	106	4	1.1	254	5	3.4	3620	21	205
11	106	3	.86	277	3	2.2	3840	29	301
12	109	3	.88	282	1	.76	3430	14	130
13	112	1	.30	268	6	4.3	2860	12	93
14	112	1	.30	345	8	7.5	2530	15	102
15	109	2	.59	514	9	12	2620	3	21
16	112	2	.60	772	21	44	2660	7	50
17	118	2	.64	1020	17	47	2970	8	64
18	115	2	.62	1310	25	88	3250	16	140
19	106	2	.57	1420	28	107	2700	11	80
20	112	2	.60	1290	23	80	2140	17	98
21	121	2	.65	1440	24	93	1990	7	38
22	127	3	1.0	1290	17	59	1990	8	43
23	115	2	.62	1090	5	15	2420	10	65
24	115	3	.93	973	7	18	2760	11	82
25	134	2	.72	955	7	18	2150	8	46
26	137	2	.74	892	6	14	1750	5	24
27	134	2	.72	910	4	9.8	1530	6	25
28	148	3	1.2	1170	11	35	1440	7	27
29	185	5	2.5	1500	25	101	1820	13	64
30	201	3	1.6	1990	61	328	2090	7	40
31	--	--	--	2640	98	699	--	--	--
TOTAL	3553	--	24.93	24660	--	1802.16	85720	--	4731

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2090	6	34	946	3	7.7	508	1	1.4
2	1880	4	20	910	4	9.8	478	2	2.6
3	1420	4	15	865	2	4.7	460	2	2.5
4	1220	4	13	772	2	4.2	442	2	2.4
5	1240	4	13	732	3	5.9	424	2	2.3
6	1350	7	26	708	4	7.6	576	2	3.1
7	1460	7	28	684	5	9.2	611	3	4.9
8	1500	4	16	676	5	9.1	548	2	3.0
9	1490	7	28	668	3	5.4	520	2	2.8
10	1400	5	19	646	3	5.2	625	3	5.1
11	1300	5	18	646	3	5.2	724	2	3.9
12	1270	4	14	632	4	6.8	724	4	7.8
13	1290	4	14	632	5	8.5	639	2	3.5
14	1340	4	14	756	4	8.2	569	1	1.5
15	1140	4	12	804	4	8.7	527	1	1.4
16	1050	3	8.5	708	3	5.7	484	1	1.3
17	1010	4	11	646	1	1.7	460	2	2.5
18	955	4	10	597	2	3.2	436	2	2.4
19	982	4	11	555	1	1.5	436	2	2.4
20	910	3	7.4	583	2	3.1	478	2	2.6
21	1090	10	29	569	2	3.1	442	2	2.4
22	982	3	8.0	534	2	2.9	424	2	2.3
23	838	3	6.8	625	3	5.1	412	1	1.1
24	804	2	4.3	740	3	6.0	406	1	1.1
25	838	4	9.1	646	2	3.5	406	1	1.1
26	865	2	4.7	590	3	4.8	394	2	2.1
27	883	3	7.2	555	2	3.0	436	1	1.2
28	847	4	9.1	527	2	2.8	424	2	2.3
29	812	3	6.6	514	1	1.4	384	1	1.0
30	804	7	15	514	2	2.8	378	1	1.0
31	883	3	7.2	527	2	2.8	--	--	--
TOTAL	35943	--	438.9	20507	--	159.6	14781	--	75.0

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 214191
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 7418.05

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MONT.

LOCATION.--Lat 45°00'40", long 109°04'00", in E½NE¼ sec.31, T.9 S., R.22 E., Carbon County, at bridge on county road, 0.4 mile downstream from gaging station, just upstream from Sand Coulee, 0.8 mile north of Wyoming-Montana State line, 9.5 miles southwest of Belfry, and at mile 78.1.

DRAINAGE AREA.--1,154 sq mi (at gaging station).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.												
21...	1320	430	12	150	37	7.9	9.5	.9	132	0	32	2.1
NOV.												
02...	1715	510	9.7	0	36	11	9.8	1.3	133	0	42	1.3
DEC.												
02...	1415	267	9.0	70	43	12	11	1.1	135	0	53	3.1
JAN.												
04...	1620	297	11	30	41	10	10	1.1	140	0	42	3.1
FEB.												
09...	1645	301	11	150	41	12	9.8	1.3	137	0	53	1.7
MAR.												
08...	1530	271	9.1	80	47	12	14	1.2	130	0	70	2.1
MAY												
01...	1530	516	12	20	28	6.2	8.7	.5	110	0	26	1.0
JUNE												
01...	1715	6520	8.2	40	13	2.0	2.9	.7	48	0	7.4	.8
JULY												
13...	0830	3120	6.9	0	11	3.2	3.5	.5	49	0	5.8	.7
AUG.												
02...	1645	1620	14	480	21	4.5	5.4	1.2	79	0	15	1.7
30...	1545	950	9.3	120	27	6.8	7.5	1.2	101	4	21	1.5

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1972.
Water temperatures: October 1965 to September 1969.
Sediment records: April to August 1971.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
21...	.1	.5	40	166	.23	202	120	12	.3	281	8.3	8.0
NOV.												
02...	.2	.2	20	176	.24	242	140	31	.4	296	8.3	4.0
DEC.												
02...	.2	.1	10	208	.28	150	160	34	.4	337	8.3	1.5
JAN.												
04...	.1	.8	40	188	.26	148	140	25	.4	319	8.3	.0
FEB.												
09...	.2	1.0	50	198	.27	161	150	38	.3	349	7.8	.0
MAR.												
08...	.2	.7	20	228	.31	167	160	53	.5	381	8.1	6.0
MAY												
01...	.0	.2	20	137	.19	191	95	5	.4	235	8.2	4.0
JUNE												
01...	.1	.2	20	58	.08	1020	41	2	.2	89	7.9	9.5
JULY												
13...	.1	.2	20	56	.08	472	40	0	.2	95	7.7	14.5
AUG.												
02...	.1	.7	0	103	.14	451	70	5	.3	155	8.0	17.5
30...	.2	.3	30	128	.17	328	95	5	.3	217	8.5	19.5

06207540 SILVER TIP CREEK NEAR BELFRY, MONT.

LOCATION (revised).--Lat 45°09'32", long 108°58'31", in NE¼NW¼ sec.12, T.8 S., R.22 E., Carbon County, at gaging station 0.1 mile upstream from county bridge, 1.5 miles upstream from mouth and 2 miles northeast of Belfry.

DRAINAGE AREA.--88.0 sq mi. Area at site used prior to May 12, 1972, 87.6 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1968 to March 1972 (daily), April to September 1972 (monthly).
Water temperatures: October 1969 to April 1972 (discontinued).
Sediment records: October 1968 to April 1972 (daily), May to September 1972 (monthly).

EXTREMES, October 1971 to April 1972:
Dissolved solids (October to March): Maximum, 7,020 mg/l Dec. 5-9; minimum, 673 mg/l Feb. 19-24.
Hardness (October to March): Maximum, 1,700 mg/l Dec. 5-9; minimum, 220 mg/l Feb. 19-24.
Specific conductance (October to March): Maximum daily, 8,620 micromhos Dec. 7; minimum daily, 567 micromhos Feb. 20.
Water temperatures: Maximum, 22.0°C Oct. 10; minimum, freezing point on several days during November to March.
Sediment concentrations: Maximum daily, 37,200 mg/l Mar. 12; minimum daily, no flow for many days during period.
Sediment discharge: Maximum daily, 7,160 tons Feb. 28; minimum daily, 0 tons on many days during period.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
02-05	--	13	--	8.7	320	150	43	490	32	238	0	1200
06-28	--	1.3	--	12	10	250	110	1000	60	269	0	2500
NOV.												
01-08	--	.36	--	14	40	220	130	1200	58	177	0	2900
09-30	--	1.4	--	13	0	220	110	1100	57	218	0	2500
DEC.												
05-09	--	.23	--	17	10	350	190	1700	7.4	390	0	3900
FEB.												
19-24	--	87	--	4.9	90	65	15	120	12	120	0	350
25-29	--	53	--	7.9	10	110	33	280	16	216	0	700
MAR.												
01-10	--	9.8	--	7.5	20	170	57	520	26	228	0	1300
11-19	--	5.3	--	8.5	20	220	88	810	43	267	0	2000
20-31	--	2.5	--	11	10	220	110	1100	58	188	0	2600
WTD. AVG.	--	--	--	6.9	63	111	36	328	21	175	0	831
TIME WTD. AVG.	--	10	--	11	29	211	97	914	46	231	0	2190
TONS PER DAY	--	--	--	.2	0	3.1	1.0	9.2	.6	5	0	23

ANALYSES OF ADDITIONAL SAMPLES

NOV.												
19...	1530	.18	.0	16	30	330	150	1300	59	401	0	3000
FEB.												
25...	1110	3.2	.0	8.2	20	150	45	400	19	232	0	1000
MAR.												
16...	1415	4.3	10.5	10	--	270	110	1100	51	379	0	2300
APR.												
04...	1630	3.7	12.0	14	20	310	120	1100	65	400	0	2700
18...	1345	1.4	1.5	11	10	270	120	1100	53	333	0	2700
MAY												
04...	1320	2.5	19.0	13	20	260	120	1100	71	341	0	2700
30...	1620	2.3	27.0	15	30	290	120	1100	--	348	0	2700
JUNE												
10...	1015	19	14.0	8.1	30	180	51	390	24	196	0	1200
27...	1600	2.7	25.0	12	40	280	110	1100	67	325	0	2500
JULY												
10...	1345	2.4	23.0	14	20	270	130	1100	79	312	0	2800
25...	1030	1.1	18.5	15	20	290	140	1200	74	283	0	2700
AUG.												
08...	1415	2.4	21.5	15	30	250	110	1100	70	314	0	2500
28...	1030	.82	16.5	11	90	250	110	1000	43	297	0	2400
SEP.												
12...	1300	1.8	17.5	14	210	240	110	970	58	321	0	2300
26...	1030	1.5	4.0	15	20	240	110	1100	61	358	0	2400

06207540 SILVER TIP CREEK NEAR BELFRY, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 7,020 mg/l Dec. 5-9, 1972; minimum, 673 mg/l Feb. 19-24, 1972.
Hardness: Maximum, 1,700 mg/l Dec. 5-9, 1972; minimum, 220 mg/l Feb. 19-24, 1972.
Specific conductance: Maximum daily, 8,620 micromhos Dec. 7, 1971; minimum daily, 225 micromhos Feb. 13, 1971.
Water temperatures: Maximum observed, 28.0°C June 23, 1970, June 23, July 23, 1971; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 60,300 mg/l July 12, 1970; minimum daily, no flow for many days each year.
Sediment discharge: Maximum daily, 40,200 tons June 26, 1969; minimum daily, 0 tons on many days each year.

REMARKS.--Daily samples for chemical analyses composited by discharge during October to March. Additional samples were collected for more comprehensive definition of water quality at this station. No flow for many days during period. Flow affected by ice most of winter months. Flow affected by oil recovery operations upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
02-05	200	1.1	.00	--	2240	3.05	78.6	550	340	9.1	3030	8.3
06-28	440	1.3	.00	--	4510	6.13	15.8	1100	840	13	5800	8.1
NOV.												
01-08	520	1.0	.49	--	5130	6.98	4.99	1100	940	16	6330	8.1
09-30	470	1.1	.34	--	4580	6.23	17.3	1000	820	15	5780	8.0
DEC.												
05-09	660	1.4	.35	--	7020	9.55	5.69	1700	1300	18	8550	8.1
FEB.												
19-24	45	.4	.33	.000	673	.92	158	220	130	3.5	1050	7.9
25-29	100	.6	.03	.000	1350	1.84	193	410	230	6.0	1930	8.3
MAR.												
01-10	200	1.2	.47	.000	2400	3.26	63.5	660	470	8.8	3350	7.4
11-19	330	1.3	.46	.010	3630	4.94	51.9	910	690	12	4940	7.5
20-31	440	1.5	.20	.010	4630	6.30	31.3	1000	850	15	6250	7.2
WTD. AVG.	129	.7	.25	--	1550	2.11	--	426	285	6.2	2180	7.9
TIME WTD. AVG.	382	1.2	.26	--	3970	5.40	--	932	734	13	5140	7.9
TONS PER DAY	3.6	.0	.01	--	43	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
NOV.												
19...	510	1.4	.20	--	5570	7.58	2.71	1400	1100	15	6880	7.6
FEB.												
25...	190	.9	.29	--	1930	2.62	16.7	560	370	7.4	2740	7.6
MAR.												
16...	790	1.2	.18	--	4820	6.53	55.7	1100	820	14	5650	7.6
APR.												
04...	470	1.3	.23	.010	4980	6.77	49.8	1300	940	13	6260	7.9
18...	440	1.2	.29	.000	4860	6.61	18.8	1200	890	14	5960	8.3
MAY												
04...	510	1.3	.17	.010	4960	6.75	33.5	1100	860	14	6400	7.9
30...	510	1.5	.34	.020	4910	6.68	30.5	1200	930	14	6560	7.0
JUNE												
10...	110	.7	1.4	.020	2070	2.82	107	660	500	6.6	2790	7.3
27...	490	1.2	.00	.000	4720	6.42	34.4	1200	880	14	5980	8.1
JULY												
10...	540	1.4	.01	.000	5090	6.92	33.1	1200	950	14	6610	7.9
25...	650	1.4	.01	.000	5210	7.09	15.5	1300	1100	14	6320	7.5
AUG.												
08...	520	1.6	.03	.020	4720	6.42	30.6	1100	820	15	6340	7.8
28...	500	1.4	.50	.000	4460	6.07	9.87	1100	830	13	5840	8.1
SEP.												
12...	470	1.3	.26	.010	4330	5.89	21.0	1100	790	13	5780	8.1
26...	500	1.5	.27	.030	4600	6.26	19.5	1100	760	15	5710	8.0

06207540 SILVER TIP CREEK NEAR BELFRY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
NOV.					
19...	1530	.18	--	2300	10
FEB.					
25...	1110	3.2	.030	740	280
MAR.					
16...	1415	4.3	.070	1800	340
APR.					
04...	1630	3.7	--	2200	30
18...	1345	1.4	.000	--	10
MAY					
04...	1320	2.5	--	2700	17
30...	1620	2.3	--	2700	20
JUNE					
10...	1015	19	--	710	340
27...	1600	2.7	--	2600	40
JULY					
10...	1345	2.4	.020	2700	14
25...	1030	1.1	.030	200	25
AUG.					
08...	1415	2.4	.030	3100	20
28...	1030	.82	--	--	0
SEP.					
12...	1300	1.8	.020	2500	10
26...	1030	1.5	--	--	0

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), OCTOBER 1971 TO MARCH 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	7870	5980	---	---	3440	---	---	---	---	---	---
2	1880	6030	6740	---	---	3480	---	---	---	---	---	---
3	3850	5840	---	---	---	4210	---	---	---	---	---	---
4	3040	5510	---	---	---	4230	---	---	---	---	---	---
5	3040	5460	8370	---	---	3790	---	---	---	---	---	---
6	4480	7010	8490	---	---	2530	---	---	---	---	---	---
7	5860	7010	8620	---	---	---	---	---	---	---	---	---
8	6090	6680	8370	---	---	4120	---	---	---	---	---	---
9	6320	5590	8030	---	---	4150	---	---	---	---	---	---
10	6350	5560	---	---	---	3610	---	---	---	---	---	---
11	6360	5300	---	---	---	4110	---	---	---	---	---	---
12	6450	5080	---	---	---	4270	---	---	---	---	---	---
13	6500	6050	---	---	---	4580	---	---	---	---	---	---
14	6730	6220	---	---	---	4790	---	---	---	---	---	---
15	6310	5760	---	---	---	5270	---	---	---	---	---	---
16	5070	5940	---	---	---	5460	---	---	---	---	---	---
17	6190	6100	---	---	---	5620	---	---	---	---	---	---
18	3570	6540	---	---	---	5720	---	---	---	---	---	---
19	5540	5790	---	---	1840	5510	---	---	---	---	---	---
20	5520	7390	---	---	567	6060	---	---	---	---	---	---
21	5850	5790	---	---	1010	5770	---	---	---	---	---	---
22	6020	6310	---	---	1110	6160	---	---	---	---	---	---
23	6090	6340	---	---	1010	6060	---	---	---	---	---	---
24	6200	6410	---	---	817	6170	---	---	---	---	---	---
25	6400	6140	---	---	3220	6180	---	---	---	---	---	---
26	6230	6340	7280	---	3200	6170	---	---	---	---	---	---
27	5450	6020	---	---	2030	6380	---	---	---	---	---	---
28	6910	6040	---	---	1050	6290	---	---	---	---	---	---
29	---	6400	---	---	1590	6290	---	---	---	---	---	---
30	---	6470	---	---	---	6210	---	---	---	---	---	---
31	---	---	---	---	---	6200	---	---	---	---	---	---
MONTH	5490	6170	---	---	---	5090	---	---	---	---	---	---

06207540 SILVER TIP CREEK NEAR BELFRY, MONT.--Continued

TEMPERATURE (°C) OF WATER, OCTOBER 1971 TO APRIL 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	3.0	0.0	---	---	0.0	12.0	---	---	---	---	---
2	10.0	3.0	1.0	---	---	0.0	5.0	---	---	---	---	---
3	10.0	3.0	---	---	---	1.0	0.0	---	---	---	---	---
4	15.5	5.0	---	---	---	2.0	14.0	---	---	---	---	---
5	19.5	1.0	---	---	---	3.0	14.0	---	---	---	---	---
6	7.5	0.0	0.0	---	---	5.0	20.0	---	---	---	---	---
7	5.5	2.0	0.0	---	---	---	17.0	---	---	---	---	---
8	5.0	2.0	0.0	---	---	5.0	12.0	---	---	---	---	---
9	16.0	3.0	0.0	---	---	6.0	11.0	---	---	---	---	---
10	22.0	3.0	0.0	---	---	7.0	6.0	---	---	---	---	---
11	16.0	2.0	---	---	---	5.0	14.0	---	---	---	---	---
12	16.5	3.0	---	---	---	6.5	16.0	---	---	---	---	---
13	15.5	9.5	---	---	---	12.0	11.0	---	---	---	---	---
14	8.0	5.0	---	---	---	17.0	6.0	---	---	---	---	---
15	2.5	2.0	---	---	---	11.0	18.0	---	---	---	---	---
16	4.5	4.0	---	---	---	15.0	16.0	---	---	---	---	---
17	5.0	1.5	---	---	---	16.0	12.0	---	---	---	---	---
18	8.0	1.0	---	---	---	7.0	3.0	---	---	---	---	---
19	10.0	2.0	---	---	5.0	11.0	11.0	---	---	---	---	---
20	11.5	1.5	---	---	1.0	8.0	15.0	---	---	---	---	---
21	7.0	5.0	---	---	1.0	15.0	17.0	---	---	---	---	---
22	12.0	2.0	---	---	4.0	8.0	12.0	---	---	---	---	---
23	10.0	1.0	---	---	0.0	8.0	16.0	---	---	---	---	---
24	10.0	1.0	---	---	0.0	15.0	17.0	---	---	---	---	---
25	12.0	0.5	---	---	3.0	5.0	9.0	---	---	---	---	---
26	13.0	1.0	5.0	---	2.0	8.0	5.0	---	---	---	---	---
27	0.0	2.0	---	---	2.0	7.0	19.0	---	---	---	---	---
28	0.0	1.5	---	---	7.0	6.0	8.0	---	---	---	---	---
29	---	5.0	---	---	7.0	4.0	20.0	---	---	---	---	---
30	---	2.0	---	---	---	5.0	11.0	---	---	---	---	---
31	---	---	---	---	---	11.0	---	---	---	---	---	---
MONTH	10.0	2.5	---	---	---	7.5	12.0	---	---	---	---	---

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM
FEB.										
29...	1445	2.0	30	15700	1270	38	52	79	90	100
MAR.										
10...	1715	7.0	7.5	33000	668	32	50	95	99	100
12...	1630	6.5	6.4	40800	705	32	52	95	99	100
MAY										
20...	1230	15.0	3.0	27500	223	--	--	--	--	--
21...	1120	13.5	33	23000	2120	--	--	--	--	--
21...	2050	17.0	88	109000	25900	95	78	85	90	100
22...	1625	16.5	6.0	22700	368	--	--	--	--	--
23...	1625	19.0	3.0	8260	67	--	--	--	--	--
24...	1625	18.5	2.8	32600	246	--	--	--	--	--
25...	1730	11.5	3.2	8670	75	--	--	--	--	--
JUNE										
09...	1445	20.0	12	64800	2160	--	--	--	--	--
09...	2035	15.0	832	62400	140000	--	--	--	--	--
10...	0730	14.0	20	47700	2580	--	--	--	--	--
10...	1000	14.0	19	40000	2050	56	71	95	98	100
AUG.										
03...	0745	15.0	22	46100	2740	--	--	--	--	--
23...	1915	14.0	14	37900	1430	--	--	--	--	--

SUSPENDED-SEDIMENT DISCHARGE, OCTOBER 1971 TO APRIL 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6.9	10800	201	.10	519	.14	.10	525	.14
2	21	20600	1170	.20	591	.32	.10	980	.26
3	11	13200	446	.20	592	.32	0	0	0
4	13	18800	730	.30	335	.27	0	0	0
5	8.0	18400	444	.50	352	.48	0	0	0
6	.86	4910	11	.10	368	.10	.10	42	.01
7	.82	3140	7.0	.50	488	.66	.20	92	.05
8	1.0	3610	9.2	1.0	600	1.6	.30	662	.54
9	1.0	4940	13	1.6	359	1.6	.30	579	.47
10	.92	4490	11	5.0	354	4.8	.20	86	.05
11	.92	4370	11	7.2	4900	95	.10	7	0
12	.50	2010	3.1	4.1	11900	132	0	0	0
13	1.5	3800	22	2.0	10400	56	0	0	0
14	1.0	5760	17	1.6	2620	11	0	0	0
15	.57	3510	5.4	2.6	4050	28	0	0	0
16	.61	4030	6.2	2.5	5750	39	0	0	0
17	1.3	6600	23	1.9	880	4.5	0	0	0
18	4.3	14700	217	.70	635	1.2	0	0	0
19	4.1	6100	99	.20	800	.43	0	0	0
20	1.3	4660	16	.40	3500	3.6	0	0	0
21	1.1	4080	12	.30	11400	9.2	0	0	0
22	1.3	4810	17	.20	1700	.92	0	0	0
23	1.4	5680	21	.20	1150	.61	0	0	0
24	1.5	5950	22	.20	850	.46	.20	5800	3.1
25	1.3	4890	17	.20	950	.50	.30	4450	3.6
26	1.4	4700	18	.10	1410	.38	.20	1440	.78
27	1.3	2330	8.2	.10	4680	1.3	.10	50	.01
28	.50	1900	1.5	.20	3050	1.6	0	0	0
29	0	0	0	.20	720	.39	0	0	0
30	0	0	0	.10	900	.24	0	0	0
31	0	0	0	--	--	--	0	0	0
TOTAL	90.28	--	3660.6	34.50	--	396.62	2.20	--	9.01

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1		0		0	0	0	19	7900	405
2		0		0	0	0	12	6900	224
3		0		0	0	0	5.9	3100	49
4		0		0	0	0	5.9	2350	37
5		0		0	0	0	6.8	9100	169
6		0		0	0	0	18	18400	894
7		0		0	0	0	7.2	10300	200
8		0		0	0	0	7.2	10300	200
9		0		0	0	0	5.9	10300	164
10		0		0	0	0	7.5	27800	563
11		0		0	0	0	7.7	27400	570
12		0		0	0	0	6.4	37200	643
13		0		0	0	0	6.2	34100	571
14		0		0	0	0	5.3	31200	446
15		0		0	0	0	4.1	25400	281
16		0		0	0	0	4.7	23200	294
17		0		0	0	0	4.9	19600	259
18		0		0	0	0	4.1	17700	196
19		0		80	1110	240	4.3	18300	212
20		0		170	280	129	4.1	5700	63
21		0		120	1000	324	2.7	12100	88
22		0		80	2790	603	1.2	5610	18
23		0		50	1170	158	1.9	11200	57
24		0		20	2230	120	3.3	11800	105
25		0		5.0	1200	16	3.8	15000	154
26		0		10	600	16	2.7	14300	104
27		0		80	4300	929	2.5	11600	78
28		0		120	22100	7160	1.3	2300	8.1
29		0		50	26000	4320	.75	7500	15
30		0		--	--	--	2.7	10300	75
31		0		--	--	--	2.7	10500	77
TOTAL	0	--	0	785.0	--	14015	172.75	--	7219.1

06207540 SILVER TIP CREEK NEAR BELFRY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, OCTOBER 1971 TO APRIL 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2.4	10800	70	--	--	--	--	--	--
2	2.1	10400	60	--	--	--	--	--	--
3	1.6	2200	9.9	--	--	--	--	--	--
4	1.3	12200	43	--	--	--	--	--	--
5	1.2	10600	34	--	--	--	--	--	--
6	1.3	10400	37	--	--	--	--	--	--
7	1.4	11200	42	--	--	--	--	--	--
8	1.6	9900	40	--	--	--	--	--	--
9	1.7	7900	36	--	--	--	--	--	--
10	1.8	4300	21	--	--	--	--	--	--
11	1.8	7600	37	--	--	--	--	--	--
12	2.0	7950	43	--	--	--	--	--	--
13	2.1	7200	41	--	--	--	--	--	--
14	2.2	3600	15	--	--	--	--	--	--
15	2.3	5100	32	--	--	--	--	--	--
16	2.5	7100	48	--	--	--	--	--	--
17	2.6	4600	32	--	--	--	--	--	--
18	2.7	9800	66	--	--	--	--	--	--
19	2.6	14100	99	--	--	--	--	--	--
20	2.5	9700	65	--	--	--	--	--	--
21	2.5	8400	56	--	--	--	--	--	--
22	2.5	6300	43	--	--	--	--	--	--
23	2.4	7500	49	--	--	--	--	--	--
24	2.4	6800	44	--	--	--	--	--	--
25	2.3	8300	52	--	--	--	--	--	--
26	2.2	4700	28	--	--	--	--	--	--
27	2.2	7200	43	--	--	--	--	--	--
28	2.2	8800	52	--	--	--	--	--	--
29	2.2	6400	38	--	--	--	--	--	--
30	2.3	5300	33	--	--	--	--	--	--
31	--	--	--	--	--	--	--	--	--
TOTAL	62.9	--	1319.9	--	--	--	--	--	--

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 1147.63
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR PERIOD (TONS) 26611.23

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MONT.

LOCATION.--Lat 45°27'57", long 108°50'35", in SE¼SE¼SE¼ sec.23, T.4 S., R.23 E., Carbon County, at bridge at former gaging station site on county road, 0.5 mile east of Edgar, 6 miles upstream from Rock Creek, and at mile 27.0.

DRAINAGE AREA.--2,032 sq mi.

TEMPERATURE (°C) OF WATER, JULY TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	---	19.5	19.0
2	---	---	---	---	---	---	---	---	---	---	17.0	15.0
3	---	---	---	---	---	---	---	---	---	---	16.0	13.0
4	---	---	---	---	---	---	---	---	---	---	16.0	12.0
5	---	---	---	---	---	---	---	---	---	---	19.0	15.0
6	---	---	---	---	---	---	---	---	---	16.0	17.0	14.5
7	---	---	---	---	---	---	---	---	---	18.0	20.0	15.5
8	---	---	---	---	---	---	---	---	---	17.0	21.0	---
9	---	---	---	---	---	---	---	---	---	17.5	18.0	---
10	---	---	---	---	---	---	---	---	---	14.5	21.0	11.5
11	---	---	---	---	---	---	---	---	---	15.5	18.5	14.5
12	---	---	---	---	---	---	---	---	---	17.5	20.0	15.5
13	---	---	---	---	---	---	---	---	---	16.5	18.0	15.5
14	---	---	---	---	---	---	---	---	---	16.0	20.0	15.5
15	---	---	---	---	---	---	---	---	---	14.5	20.5	15.0
16	---	---	---	---	---	---	---	---	---	15.5	18.0	---
17	---	---	---	---	---	---	---	---	---	15.0	16.0	13.0
18	---	---	---	---	---	---	---	---	---	16.0	18.0	12.0
19	---	---	---	---	---	---	---	---	---	13.0	19.0	15.0
20	---	---	---	---	---	---	---	---	---	10.5	17.0	12.0
21	---	---	---	---	---	---	---	---	---	---	19.0	12.0
22	---	---	---	---	---	---	---	---	---	14.5	---	12.0
23	---	---	---	---	---	---	---	---	---	14.5	17.0	10.5
24	---	---	---	---	---	---	---	---	---	16.0	---	9.5
25	---	---	---	---	---	---	---	---	---	17.0	14.0	8.0
26	---	---	---	---	---	---	---	---	---	17.0	15.5	8.5
27	---	---	---	---	---	---	---	---	---	16.5	19.0	7.5
28	---	---	---	---	---	---	---	---	---	16.0	19.0	7.5
29	---	---	---	---	---	---	---	---	---	18.0	20.0	8.5
30	---	---	---	---	---	---	---	---	---	19.0	19.0	7.0
31	---	---	---	---	---	---	---	---	---	18.0	16.0	---
MONTH	---	---	---	---	---	---	---	---	---	16.0	18.0	12.5

06214050 CLARKS FORK YELLOWSTONE RIVER NEAR LAUREL, MONT.

LOCATION.--Lat 45°37'32", long 108°45'50", in SE¼SE¼ sec.28, T.2 S., R.24 E., Yellowstone County, at county bridge 3 miles south of Laurel and at mile 4.7.

DRAINAGE AREA.--2,783 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
20...	1130	1000	56	20	41	150	5.8	.2	436	.59	1180
NOV.											
16...	1030	800	61	20	--	150	3.1	--	404	.55	873
DEC.											
20...	1100	650	59	20	--	120	3.5	--	350	.48	614
JAN.											
17...	1200	600	78	23	31	160	3.7	.3	420	.57	680
FEB.											
16...	0945	500	70	23	--	170	4.1	--	428	.58	578
MAR.											
21...	1050	900	52	19	--	140	5.4	--	376	.51	914
APR.											
17...	0930	550	66	23	42	170	4.3	.3	462	.63	686
MAY											
22...	1000	4000	24	6.8	--	63	5.2	--	230	.31	2480
JUNE											
22...	1030	4500	19	5.6	--	29	1.1	--	172	.23	2090
JULY											
14...	0925	3000	24	8.4	14	46	1.0	.3	154	.21	1250
AUG.											
08...	1000	1200	16	13	26	97	5.6	.4	284	.39	920
SEP.											
08...	1000	1200	52	18	30	120	3.3	.3	342	.47	1110

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MONT.--Continued

PERIOD OF RECORD.--Water temperatures: July to September 1972.
Sediment records: July to September 1972

REMARKS.--Records of discharge are given for Clarks Fork Yellowstone River near Silesia, Mont. (station 06208800). Flow affected by diversions for irrigation upstream from station.

SUSPENDED-SEDIMENT DISCHARGE, JULY TO SEPTEMBER 1972

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4220	357	4070	1420	172	659	980	88	233
2	4480	304	3640	1680	378	1630	930	77	193
3	3880	248	2940	1820	328	1610	940	107	272
4	2840	187	1430	1630	271	1190	910	84	206
5	2390	171	1100	1460	127	501	829	77	172
6	2250	183	1110	1360	93	341	802	105	227
7	2420	157	1030	1290	82	286	920	124	308
8	2640	153	1180	1190	80	257	1190	184	598
9	2990	157	1230	1130	77	235	1190	183	589
10	2970	146	1170	1110	75	225	1170	132	417
11	2760	129	961	1060	94	269	1370	212	784
12	2640	143	1020	1030	66	184	1580	230	952
13	2610	123	867	1030	78	215	1360	193	709
14	2780	127	926	1060	82	235	1290	138	477
15	2730	117	862	1300	260	913	1190	181	814
16	2510	108	732	1360	1050	3860	1850	86	264
17	2580	119	739	1380	784	2750	950	84	215
18	2040	108	595	1190	208	644	892	90	217
19	2040	118	650	1080	70	198	775	102	213
20	2130	150	863	1040	130	365	690	109	203
21	2240	134	810	1190	485	1300	690	90	183
22	2370	159	1020	1050	242	686	690	88	164
23	1990	127	682	1110	586	1760	666	79	142
24	1760	98	484	1730	1480	6910	666	68	130
25	1500	86	348	1450	1120	4380	750	68	173
26	1400	98	370	1340	375	1360	757	97	190
27	1480	103	389	1290	195	679	766	89	184
28	1440	106	412	1190	107	344	829	77	172
29	1400	144	544	1090	88	259	1000	75	203
30	1380	103	384	1040	118	331	920	77	191
31	1390	92	345	970	134	351	--	--	--
TOTAL	73570	--	32405	38830	--	34929	28600	--	9292

TOTAL DISCHARGE FOR PERIOD (CFS-DAYS) 141000
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR PERIOD (TONS) 76626

06214050 CLARKS FORK YELLOWSTONE RIVER NEAR LAUREL, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1969 to September 1972.

REMARKS.--Records of discharge are estimated from Clarks Fork Yellowstone River near Silesia, Mont. (station 06208800). Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARD-NESS (CA,MG) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.										
20...	220	1.2	.36	.13	--	--	--	--	.19	1.8
NOV.										
16...	230	--	.41	.09	--	--	--	--	.080	1.9
DEC.										
28...	230	--	.52	.03	--	--	--	--	.050	1.1
JAN.										
17...	270	.8	.63	.05	--	--	--	--	.010	1.1
FEB.										
16...	270	--	.59	.10	--	--	--	--	.000	.9
MAR.										
21...	210	--	.44	.03	--	--	--	--	.21	2.1
APR.										
17...	260	1.1	.08	.28	--	--	--	--	.050	.6
MAY										
22...	88	--	.26	.06	--	--	--	--	.14	3.2
JUNE										
22...	70	--	.15	.09	--	--	--	--	.19	1.1
JULY										
14...	94	.6	.13	--	.29	.16	.000	.030	.16	1.4
AUG.										
08...	93	1.2	--	--	--	--	--	--	--	1.5
SEP.										
08...	200	.9	--	--	--	--	--	--	--	1.8

06214050 CLARKS FORK YELLOWSTONE RIVER NEAR LAUREL, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
20...	1130	1000	.00	.00	.0	.00	.00	.00
JAN.								
17...	1200	600	.00	.00	.0	.00	.00	.00
APR.								
17...	0930	550	.00	.00	.0	.00	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
20...	1130	1000	2	10	80	0	0	5	.00
JAN.									
17...	1200	600	2	0	60	1	0	6	.00
APR.									
17...	0930	550	0	0	80	1	0	3	.00

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
20...	1130	6.5	19.0	700	7.8	8.0	--	--	300
NOV.									
16...	1030	4.0	2.0	480	--	8.0	--	--	51
DEC.									
20...	1100	.0	3.0	510	12.4	7.9	--	--	9
JAN.									
17...	1200	.0	8.0	610	11.6	7.6	--	--	23
FEB.									
16...	0945	.0	10.0	600	11.4	8.0	--	--	30
MAR.									
21...	1050	8.0	14.5	570	10.7	8.1	--	--	53
APR.									
17...	0930	10.0	6.5	625	10.8	8.1	--	--	11
MAY									
22...	1000	11.0	15.0	300	9.2	7.6	--	--	5500
JUNE									
22...	1030	13.5	20.5	180	8.8	7.7	--	--	370
JULY									
14...	0925	17.0	20.0	250	8.5	7.7	81	1100	230
AUG.									
08...	1000	19.0	24.5	410	8.0	8.1	127	80000	1500
SEP.									
08...	1000	13.5	22.0	500	--	8.2	150	21000	410

06214050 CLARKS FORK YELLOWSTONE RIVER NEAR LAUREL, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT. 20...	.00	.00	.00	.00	.00	.00	.00
JAN. 17...	.00	.00	.00	.00	.00	.00	.00
APR. 17...	.00	.00	.00	.00	.00	.00	.00

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 20...	0	10	.2	5	5	7	0	10
JAN. 17...	0	20	.3	0	2	2	1	20
APR. 17...	0	0	.2	1	4	0	0	10

06214100 YELLOWSTONE RIVER NEAR LAUREL, MONT.

LOCATION.--Lat 45°41'37", long 108°38'25", in NE¼ sec.4, T.2 S., R.25 E., Yellowstone County, at county bridge 5.4 miles downstream from Clarks Fork Yellowstone River, 6.6 miles east of Laurel, and at mile 358.3.

DRAINAGE AREA.--11,036 sq mi.

CHEMICAL ANALYSES, OCTOBER 1971 TO JUNE 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT. 20...	1330	5700	35	12	26	73	6.0	.4	250	.34	3850
NOV. 16...	1400	4620	37	12	--	69	4.7	--	248	.34	3090
DEC. 20...	1315	3990	37	12	--	51	6.7	--	230	.31	2480
JAN. 17...	1000	2900	43	14	24	77	7.8	.5	280	.38	2190
FEB. 16...	1245	2930	41	13	--	90	8.7	--	260	.35	2060
MAR. 21...	1320	5340	33	11	--	55	6.8	--	234	.32	3370
APR. 17...	1330	3910	38	12	25	73	6.7	.6	270	.37	2850
MAY 22...	1245	21300	18	4.7	--	19	2.8	--	154	.21	8860
JUNE 22...	1300	25500	13	4.1	--	16	1.6	--	150	.20	10300

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT. 20...	1330	5700	.00	.00	.0	.00	.00	.00
JAN. 17...	1000	2900	.00	.00	.0	.00	.00	.00
APR. 17...	1330	3910	.00	.00	.0	.00	.00	.00

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT. 20...	1330	7.5	19.0	380	7.8	8.2	--	--	220
NOV. 16...	1400	4.0	5.5	380	--	8.0	--	--	66
DEC. 20...	1315	.0	1.5	380	13.1	8.2	--	--	8
JAN. 17...	1000	.0	5.0	420	12.4	7.6	--	--	390
FEB. 16...	1245	.5	12.0	400	12.1	7.9	--	--	17
MAR. 21...	1320	9.0	19.0	360	10.3	8.4	--	--	30
APR. 17...	1330	10.5	9.5	380	11.2	8.0	--	--	24
MAY 22...	1245	12.0	18.0	170	8.6	7.2	--	--	1800
JUNE 22...	1300	14.5	26.0	140	8.3	7.5	--	--	390

06214100 YELLOWSTONE RIVER NEAR LAUREL, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1969 to June 1972 (discontinued).

REMARKS.--Records of discharge are estimated from Yellowstone River at Billings, Mont. (station 06214500). Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, OCTOBER 1971 TO JUNE 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
20...	140	1.0	.13	.13	--	--	--	--	.13	1.7
NOV.										
16...	140	--	.11	.11	--	--	--	--	.070	1.7
DEC.										
20...	140	--	.31	.03	--	--	--	--	.050	1.3
JAN.										
17...	160	.8	.47	.05	--	--	--	--	.020	1.4
FEB.										
16...	160	--	.38	.07	--	--	--	--	.000	1.1
MAR.										
21...	130	--	.11	.02	--	--	--	--	.15	1.3
APR.										
17...	144	.9	.00	.03	--	--	--	--	.040	1.8
MAY										
22...	64	--	.12	.12	--	--	--	--	.59	2.4
JUNE										
22...	49	--	.03	.20	--	--	--	--	.13	1.4

DATE	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.							
20...	.00	.00	.00	.00	.00	.00	.00
JAN.							
17...	.00	.00	.00	.00	.00	.00	.00
APR.							
17...	.00	.00	.00	.00	.00	.00	.00

DATE	TIME	DISCHARGE (CFS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BERYLLIUM (BE) (UG/L)	DISSOLVED BORON (B) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
20...	1330	5700	2	0	150	0	0	4	.00
JAN.									
17...	1000	2900	8	0	230	0	0	4	.00
APR.									
17...	1330	3910	4	0	200	1	0	2	.00

DATE	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.								
20...	0	20	.1	5	3	5	0	0
JAN.								
17...	0	40	.3	0	2	6	0	20
APR.								
17...	1	0	.2	2	3	0	0	10

06214500 YELLOWSTONE RIVER AT BILLINGS, MONT.
(Irrigation network and radiochemical station)

LOCATION (revised).--Lat 45°47'48", long 108°28'12", in NE¼NE¼ sec.34, T.1 N., R.26 E., Yellowstone County, at city of Billings Water Department intake, 1 mile east of Billings, 1.8 miles upstream from gaging station at bridge on U.S. Highway 87, 11.8 miles upstream from Pryor Creek, and at mile 347.8.

DRAINAGE AREA.--11,795 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1950 to September 1958, July 1963 to September 1972.
Water temperatures: December 1950 to September 1958 (at highway bridge), July 1963 to September 1968 (at water department intake), October 1968 to September 1970 (at both sites), October 1970 to September 1972 (at water department intake).

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 564 micromhos Jan. 30; minimum daily, 124 micromhos June 7, 13.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
04...	1040	6090	12.0	13	20	37	13	23	2.8	155	0	77
NOV.												
10...	1510	4640	4.0	14	0	37	12	23	2.5	150	0	68
DEC.												
02...	1300	3700	.0	14	10	38	13	24	3.1	151	0	77
JAN.												
14...	1030	2180	.0	19	30	45	15	26	3.2	171	0	89
FEB.												
07...	1400	2970	.0	20	40	44	14	25	3.5	170	0	87
MAR.												
13...	1400	5000	1.0	14	20	45	14	35	3.5	172	0	97
APR.												
24...	1400	3690	12.5	13	30	39	13	27	3.1	151	0	74
MAY												
08...	1115	6230	7.5	15	30	30	9.9	19	3.6	118	0	51
JUNE												
06...	1600	41300	15.0	12	80	14	3.3	5.8	1.3	56	0	12
JULY												
07...	1450	16500	18.0	13	30	18	6.0	11	1.9	79	0	24
AUG.												
14...	1250	7020	21.5	12	90	29	10	19	2.5	130	0	46
SEP.												
01...	1415	6510	16.0	13	20	31	11	20	4.2	138	0	58

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	374	384	381	484	480	411	420	360	146	150	265	342
2	359	388	390	454	471	430	418	342	162	147	261	342
3	426	379	399	423	458	463	413	336	147	149	---	342
4	416	375	419	428	451	465	413	340	138	164	314	342
5	410	371	411	441	451	483	411	357	128	182	290	342
6	394	375	401	454	439	438	416	354	128	191	288	340
7	391	379	397	485	431	429	412	326	124	193	288	340
8	362	380	399	477	423	480	406	316	135	184	282	331
9	365	375	446	442	415	482	396	310	130	185	288	318
10	360	376	469	429	410	478	387	298	140	182	299	318
11	362	374	498	422	410	461	384	304	130	177	302	318
12	368	379	479	423	405	462	387	298	125	197	302	318
13	364	380	487	428	415	475	391	289	124	191	305	316
14	365	380	462	451	421	477	396	312	127	194	305	307
15	366	379	425	455	421	476	394	293	133	196	306	307
16	365	379	425	477	422	456	391	289	130	197	305	307
17	369	379	436	460	464	458	394	260	141	207	305	307
18	377	380	430	432	446	451	395	220	140	217	302	307
19	438	382	418	423	469	438	397	180	129	221	305	307
20	396	384	404	417	491	420	404	201	141	245	307	307
21	374	385	396	432	503	410	411	283	147	250	307	307
22	373	388	397	416	472	405	413	240	154	250	307	307
23	369	384	401	412	488	405	415	200	154	232	307	314
24	366	384	401	401	481	412	406	200	153	240	308	334
25	373	385	412	420	483	410	404	204	140	255	308	330
26	374	388	413	453	487	405	401	203	144	255	305	330
27	370	388	446	500	494	392	401	204	153	263	305	330
28	369	384	442	531	499	399	389	204	162	252	305	330
29	365	384	484	545	499	395	384	199	166	257	306	330
30	384	390	485	564	---	404	381	183	161	261	307	333
31	384	---	484	531	---	412	---	167	---	261	307	---
MONTH	378	381	430	455	455	438	401	267	141	211	299	323
YEAR	348											

06214500 YELLOWSTONE RIVER AT BILLINGS, MONT.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 24.0°C Aug. 17; minimum, freezing point on several days during January and February.

Period of record:
Specific conductance: Maximum daily, 1,210 micromhos Feb. 2, 1951; minimum daily, 122 micromhos June 22, 1971.
Water temperatures: Maximum, 26.5°C July 24, 1955; minimum, freezing point on many days during winter periods.

REMARKS.--Temperature recorder stopped Mar. 12, 13, Apr. 18-25, Aug. 31 to Sept. 12, Sept. 19-30. Thermograph records furnished by Montana Fish and Game Department. Miscellaneous periodic determinations of suspended-sediment data published for May to September 1951. Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
06...	3.7	.3	.17	—	247	.34	4060	150	19	.8	393	7.7
NOV.												
10...	5.0	.5	.15	—	236	.32	2960	140	19	.8	389	8.3
DEC.												
02...	6.6	.4	.12	200	251	.34	2560	150	25	.9	398	8.2
JAN.												
14...	10	.5	.44	—	294	.40	1750	170	34	.9	445	7.9
FEB.												
07...	10	.6	.53	—	290	.39	2330	170	28	.8	438	7.7
MAR.												
13...	8.6	.5	.32	190	304	.41	4100	170	29	1.2	479	7.7
APR.												
24...	7.8	1.1	.04	—	253	.34	2520	150	27	1.0	405	8.3
MAY												
08...	5.7	.1	.12	—	193	.26	3250	120	19	.8	315	7.8
JUNE												
06...	1.1	.1	.13	—	78	.11	8700	49	3	.4	118	7.0
JULY												
07...	2.7	.4	.08	—	116	.16	5170	70	5	.6	185	7.9
AUG.												
14...	4.4	.7	.12	—	188	.26	3560	110	7	.8	304	7.8
SEP.												
01...	4.5	.5	.05	130	210	.29	3690	120	10	.8	345	7.9

RADIOCHEMICAL ANALYSES

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (PC/L)
DEC.							
02...	1300	3700	.0	1.7	.05	7.1	2.4
JUNE							
06...	1600	41300	15.0	—	.04	1.3	.4

DATE	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
DEC.							
02...	4.1	5.0	260	<.4	<.1	.5	4
JUNE							
06...	2.7	3.4	83	14	4.6	10	250

06214500 YELLOWSTONE RIVER AT BILLINGS, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	6.5	1.5	0.5	2.0	1.0	1.5	0.5	0.5	0.5	0.5	0.5
2	9.0	6.5	2.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
3	10.5	8.5	3.0	1.5	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5
4	12.0	10.0	4.5	3.0	1.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5
5	14.0	11.5	3.5	0.5	1.0	1.0	1.0	0.5	0.5	0.5	1.5	0.5
6	14.0	12.0	1.0	0.5	1.0	1.0	0.5	0.5	0.5	0.5	1.5	0.5
7	14.0	12.0	0.5	0.5	1.0	1.0	0.5	0.5	0.5	0.0	0.5	0.5
8	13.0	11.5	2.0	0.5	1.0	1.0	0.5	0.5	0.0	0.0	1.0	0.5
9	13.0	11.0	3.5	1.5	1.0	1.0	0.5	0.5	0.5	0.0	1.0	0.5
10	14.0	11.5	4.5	3.0	1.5	1.0	0.5	0.5	0.5	0.5	1.5	0.5
11	13.5	12.0	5.0	4.0	1.5	1.0	0.5	0.5	0.5	0.5	1.5	1.0
12	13.5	11.5	5.5	4.5	1.0	1.0	0.5	0.5	0.5	0.5	---	1.0
13	11.5	11.0	6.5	5.5	1.0	1.0	0.5	0.5	0.5	0.5	---	---
14	11.0	9.0	6.0	5.5	1.0	1.0	0.5	0.5	0.5	0.5	9.0	8.0
15	9.0	5.5	5.5	5.0	1.5	1.0	0.5	0.5	0.5	0.5	9.5	8.0
16	6.0	5.5	5.0	4.5	1.5	1.0	0.5	0.5	0.5	0.5	10.5	8.5
17	6.5	5.5	4.5	3.5	1.0	1.0	0.5	0.5	0.5	0.5	11.0	9.0
18	7.0	6.0	3.5	2.0	1.5	1.0	0.5	0.5	0.5	0.5	11.5	10.0
19	8.0	6.0	3.0	2.0	1.5	1.0	0.5	0.5	0.5	0.5	11.0	10.0
20	8.5	7.0	4.5	3.0	1.5	1.0	0.5	0.5	0.5	0.5	11.0	9.5
21	9.5	8.0	5.0	4.5	1.5	1.0	0.5	0.5	0.5	0.0	10.5	8.5
22	9.0	7.0	5.0	3.5	1.5	1.5	1.0	0.5	0.5	0.0	11.0	8.5
23	9.0	8.0	3.5	3.0	1.5	1.5	0.5	0.5	0.5	0.5	9.5	8.0
24	9.0	8.0	3.5	2.0	1.5	1.5	0.5	0.5	0.5	0.5	9.0	7.0
25	9.5	8.5	3.5	3.0	1.5	1.5	0.5	0.5	0.5	0.0	8.5	6.5
26	9.0	7.0	3.0	2.0	2.0	1.5	0.0	0.0	0.5	0.5	6.5	3.5
27	7.0	3.5	3.0	2.0	2.0	2.0	0.0	0.0	0.5	0.5	4.5	3.5
28	3.5	0.5	3.0	2.0	2.0	1.5	0.0	0.0	0.5	0.5	5.0	3.5
29	1.0	0.5	3.0	2.0	2.0	1.5	0.0	0.0	0.5	0.5	5.0	3.5
30	1.5	0.5	3.0	1.5	1.5	1.5	0.0	0.0	---	---	5.0	4.0
31	1.5	1.0	---	---	1.5	1.5	0.0	0.0	---	---	8.0	5.0
MONTH	14.0	0.5	6.5	0.5	2.0	1.0	1.5	0.0	0.5	0.0	11.5	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	6.5	10.5	9.0	15.5	13.0	18.0	15.0	22.0	19.5	---	---
2	8.0	5.0	12.0	9.0	14.5	12.0	15.0	14.0	20.0	17.0	---	---
3	7.0	5.0	15.0	11.5	13.5	11.5	14.5	13.5	20.0	16.5	---	---
4	8.5	5.5	15.5	13.5	14.0	11.5	15.5	13.0	20.5	18.0	---	---
5	10.0	7.0	14.0	11.0	14.5	12.0	17.0	15.0	22.0	19.5	---	---
6	11.0	9.5	11.0	8.5	15.0	13.0	18.0	16.5	23.0	19.5	---	---
7	12.0	10.0	9.0	8.5	15.5	13.5	19.5	17.0	22.0	20.0	---	---
8	11.0	9.5	8.5	8.5	14.5	13.0	20.5	18.0	22.0	20.0	---	---
9	11.0	9.0	12.0	8.5	13.5	12.0	20.0	18.0	23.0	20.5	---	---
10	10.0	8.5	14.0	11.5	14.5	12.0	19.0	16.5	23.5	20.5	---	---
11	10.0	8.5	14.0	11.5	15.0	13.5	18.5	16.5	23.5	21.0	---	---
12	11.5	9.0	14.0	12.0	15.0	12.0	18.5	16.5	22.0	20.5	---	---
13	10.5	9.0	15.5	12.0	14.5	12.0	19.5	18.0	23.0	20.0	15.0	13.5
14	11.0	9.0	17.0	14.5	15.0	13.0	19.0	17.0	23.5	21.0	14.5	13.0
15	11.0	9.0	18.5	15.5	15.0	13.0	19.5	17.0	23.5	21.0	14.5	13.5
16	12.0	10.0	18.0	15.5	15.5	13.0	19.5	17.0	23.5	21.0	13.5	13.0
17	11.5	9.0	16.5	14.5	16.0	14.0	20.0	17.0	24.0	21.0	14.0	11.5
18	---	---	15.0	13.0	15.0	12.0	20.0	17.0	23.0	21.0	15.5	13.0
19	---	---	13.0	11.0	13.5	11.5	17.0	13.5	22.0	20.5	---	---
20	---	---	12.0	11.0	14.0	11.5	16.5	12.0	20.0	18.5	---	---
21	---	---	13.5	11.5	15.0	13.0	15.5	12.0	21.0	18.5	---	---
22	---	---	13.5	12.0	16.0	13.5	17.0	12.0	21.0	19.0	---	---
23	---	---	13.5	11.0	16.0	14.0	19.0	15.5	20.5	19.0	---	---
24	---	---	14.0	11.0	15.0	13.0	20.0	17.0	21.0	18.5	---	---
25	---	---	13.0	10.5	14.5	13.0	18.5	16.5	21.5	19.0	---	---
26	11.5	10.0	13.5	10.5	14.0	13.0	19.5	16.5	21.0	18.5	---	---
27	11.5	10.0	14.5	12.0	14.5	13.0	20.5	18.0	21.0	18.5	---	---
28	15.0	11.0	16.0	13.0	16.5	13.5	21.5	18.5	22.0	19.0	---	---
29	14.5	11.5	16.5	14.5	18.5	15.5	23.0	19.5	22.0	17.0	---	---
30	11.5	9.0	16.5	14.5	19.0	16.5	23.0	20.5	21.0	16.5	---	---
31	---	---	16.5	14.5	---	---	21.5	20.0	---	---	---	---
MONTH	---	---	18.5	8.5	19.0	11.5	23.0	12.0	24.0	16.5	---	---
YEAR	24.0	0.0										

06217500 YELLOWSTONE RIVER AT HUNTLEY, MONT.

LOCATION.--Lat 46°54'15", long 108°19'01", in NW¼SW¼ sec.24, T.2 N., R.27 E., Yellowstone County, at bridge on Highway 87, 0.1 mile downstream from Twelve Mile Creek, and 0.7 mile northwest of Huntley.

DRAINAGE AREA.--12,840 sq mi.

PERIOD OF RECORD.--Chemical analyses: July to September 1972.

REMARKS.--Miscellaneous sample of chemical data published for water year 1971. Records of discharge are estimated from Yellowstone River at Billings, Mont. (station 06214500). Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
JULY											
14...	1500	14400	19	6.9	13	33	3.0	.5	140	.19	5440
AUG.											
08...	1430	8820	—	9.6	19	56	5.2	.6	230	.31	4900
SEP.											
08...	1400	7490	34	12	22	68	5.2	.5	244	.33	4930

DATE	HARD-NESS (CA,MG) (MG/L)	SODIUM AD-SORP-TION RATIO	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
JULY										
14...	76	.7	.04	—	.23	.19	.010	.040	.090	1.8
AUG.										
08...	67	1.0	—	—	—	—	—	—	—	1.7
SEP.										
08...	130	.8	—	—	—	—	—	—	—	1.9

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY									
14...	1500	18.0	26.0	200	7.8	7.6	71	1400	140
AUG.									
08...	1430	21.5	27.5	320	8.0	8.2	98	26000	2000
SEP.									
08...	1400	16.5	29.0	360	7.4	8.3	116	64000	1300

06217750 FLY CREEK AT POMPEYS PILLAR, MONT.

LOCATION.--Lat 45°59'33", long 107°57'07", in NW¼SE¼ sec.23, T.3 N., R.30 E., Yellowstone County, at gaging station at county bridge at Pompeys Pillar, 0.5 mile upstream from mouth.

DRAINAGE AREA.--285 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1972.
Water temperatures: October 1968 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 1,740 mg/l Jan. 1-31; minimum, 318 mg/l Feb. 20-29.
Hardness: Maximum, 640 mg/l Dec. 1-31, Jan. 1-31; minimum, 140 mg/l Feb. 20-29.
Specific conductance: Maximum daily, 3,090 micromhos Apr. 3; minimum daily, 373 micromhos Feb. 22.
Water temperatures: Maximum, 21.0°C Aug. 14; minimum, freezing point on many days during December to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-06	--	39	--	14	0	69	42	120	4.8	275	0	350
07-31	--	14	--	16	0	100	75	240	4.7	388	0	710
NOV.												
01-30	--	9.6	--	16	0	98	87	280	5.2	368	0	870
DEC.												
01-31	--	6.3	--	17	0	93	98	320	4.8	343	6	1000
JAN.												
01-31	--	4.2	--	18	10	97	96	330	4.9	364	0	1000
FEB.												
01-19	--	4.4	--	15	40	91	87	340	5.4	315	0	1000
20-29	--	387	--	6.7	50	35	13	45	5.8	95	0	150
MAR.												
01-11	--	294	--	6.9	20	43	14	46	4.5	111	0	160
12-31	--	25	--	11	20	98	65	250	5.6	264	0	790
APR.												
01-30	--	15	--	12	10	110	85	320	5.0	327	0	930
MAY												
01-05	--	58	--	14	10	49	25	88	3.3	187	0	240
06-22	--	50	--	14	20	64	38	140	3.7	211	0	410
23-31	--	69	--	15	20	54	31	110	2.7	177	0	330
JUNE												
01-10	--	52	--	14	30	60	36	110	3.0	206	0	350
11-30	--	46	--	13	20	52	31	91	2.9	189	0	280
JULY												
01-19	--	37	--	14	20	72	43	120	3.6	269	0	390
20-31	--	75	--	14	20	52	26	76	3.2	200	0	230
AUG.												
01-09	--	60	--	14	20	62	33	86	3.8	230	0	280
10-31	--	70	--	14	20	56	29	74	3.5	216	0	230
SEP.												
01-12	--	61	--	13	10	60	32	83	3.6	238	0	250
13-22	--	80	--	12	10	53	27	67	3.2	215	0	200
23-30	--	52	--	13	20	65	36	98	3.7	254	0	300
WTD. AVG.	--	--	--	11	24	55	30	96	4.3	185	0	298
TIME WTD. AVG.	--	50	--	14	15	78	59	197	4.3	276	1	599
TONS PER DAY	--	--	--	1.5	0	7.4	4.0	13	.6	25	0	40
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
06...	1026	6.6	2.0	16	10	130	91	300	4.5	477	0	930
MAR.												
06...	1015	55	1.0	8.1	60	62	28	120	6.5	161	0	380
JUNE												
12...	1630	51	20.0	13	40	44	26	77	2.8	172	0	240
SEP.												
05...	0905	54	14.5	13	20	62	34	90	3.3	244	0	280

06217750 FLY CREEK AT POMPEYS PILLAR, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 2,370 mg/l Apr. 15-27, 1969; minimum, 232 mg/l Feb. 12-19, 1971.
Hardness: Maximum, 802 mg/l Apr. 15-27, 1969; minimum, 110 mg/l Feb. 12-19, 1971.
Specific conductance: Maximum daily, 3,700 micromhos Apr. 30, 1969; minimum daily, 262 micromhos Feb. 14, 1971.
Water temperatures: Maximum, 21.0°C Aug. 14, 1972; minimum, freezing point on many days during winter periods most years.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Hardness, 700 mg/l Dec. 6. Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-06	9.6	.4	.10	--	746	1.01	78.6	350	120	2.9	1130	8.1
07-31	13	.5	.32	--	1350	1.84	51.0	560	240	4.4	1880	8.2
NOV.												
01-30	14	.6	.00	--	1550	2.11	40.2	600	300	5.0	2060	8.1
DEC.												
01-31	16	.5	.37	--	1730	2.35	29.4	640	340	5.5	2280	8.4
JAN.												
01-31	16	.5	.47	--	1740	2.37	19.7	640	340	5.7	2320	8.1
FEB.												
01-19	16	.4	.53	.010	1710	2.33	20.3	580	330	6.1	2270	8.3
20-29	15	.2	.54	.040	318	.43	332	140	63	1.7	479	7.6
MAR.												
01-11	6.4	.3	.22	.000	337	.46	268	140	74	1.6	530	7.6
12-31	19	.5	.11	.000	1370	1.86	92.5	510	300	4.8	1890	8.0
APR.												
01-30	23	.5	.06	.000	1650	2.24	66.8	620	360	5.6	2250	7.5
MAY												
01-05	9.9	.5	.00	.000	522	.71	81.7	230	72	2.6	791	8.3
06-22	11	.4	.01	.000	785	1.07	106	320	140	3.4	1140	8.1
23-31	7.6	.2	.00	.000	638	.87	119	260	120	3.0	942	8.0
JUNE												
01-10	6.0	.3	.01	.010	681	.93	95.6	300	130	2.8	1040	7.6
11-30	6.0	.3	.01	.010	569	.77	70.7	260	100	2.5	877	7.6
JULY												
01-19	7.3	.4	.00	.010	783	1.06	78.2	340	140	2.8	1160	8.0
20-31	5.4	.4	.00	.010	505	.69	102	240	73	2.1	781	7.8
AUG.												
01-09	7.0	.5	.04	.010	600	.82	97.2	290	100	2.2	918	7.9
10-31	6.8	.5	.13	.010	521	.71	98.5	260	82	2.0	817	8.0
SEP.												
01-12	7.1	.5	.00	.000	566	.77	93.2	280	86	2.2	884	7.8
13-22	6.9	.5	.00	.010	475	.65	103	240	67	1.9	748	7.9
23-30	7.7	.6	.00	.000	649	.88	91.1	310	100	2.4	979	8.1
WTD. AVG.	9.5	.4	.19	--	597	.81	--	261	111	2.4	883	7.8
TIME WTD. AVG.	12	.5	.17	--	1100	1.50	--	430	211	3.9	1530	8.0
TONS PER DAY	1.3	.0	.03	--	80	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
06...	15	.5	.49	--	1720	2.34	30.9	700	310	4.9	2250	8.0
MAR.												
06...	13	.3	.21	--	698	.95	104	270	140	3.2	1020	7.5
JUNE												
12...	4.9	.2	.11	.050	493	.67	67.9	220	76	2.3	759	7.7
SEP.												
05...	7.4	.5	.18	.010	611	.83	89.1	290	95	2.3	928	7.9

06217750 FLY CREEK AT POMPEYS PILLAR, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	786	1950	2220	2330	2340	379	2990	705	720	969	1100	857
2	1090	1990	2360	2180	2130	391	3080	775	684	937	987	938
3	1300	1950	2250	2320	2330	583	3090	675	908	969	987	---
4	1300	1950	2300	2130	2130	763	3080	940	872	1070	905	---
5	1290	1990	2200	2230	2220	1030	3070	913	953	927	838	896
6	1320	1920	2090	2350	2400	1010	3080	1280	1070	1130	---	870
7	1630	2130	2180	2350	2480	637	3080	884	1170	1220	838	962
8	1750	1920	2360	2350	2220	407	3020	1030	1310	1140	838	1000
9	1830	1950	2420	2350	2330	467	2960	1000	1310	1000	838	793
10	1830	1910	2300	2130	2400	594	2750	1220	1100	940	746	822
11	1830	1990	2400	2330	2330	694	2960	1030	847	1060	765	822
12	1830	1950	2400	2410	2400	861	2990	1220	960	1220	886	833
13	1860	2010	2420	2410	2480	1100	2960	1180	755	1310	987	753
14	1760	2030	2440	2230	2400	1370	2960	1180	864	1340	862	753
15	1750	2130	2440	2410	2340	1610	2960	1120	957	1460	874	743
16	1830	2130	2400	2350	2400	1820	3020	1210	900	1380	810	717
17	1850	2130	2400	2350	2400	1960	2880	1210	957	1350	789	717
18	1800	2150	2400	2410	2330	2130	2990	1150	1010	1260	784	772
19	1750	2150	2380	2320	2160	2220	3020	1010	1050	1520	775	734
20	1970	2160	2070	2330	1350	2290	3020	979	1030	800	695	720
21	1870	2150	2300	2350	484	2410	3020	1140	903	687	720	734
22	1830	2150	2300	2410	373	2470	2990	1270	847	624	720	734
23	1870	2130	2300	2470	429	2530	2990	898	772	805	746	738
24	1870	2160	2230	2330	448	2580	3020	959	883	633	717	753
25	1800	2200	2250	2410	462	2690	3180	937	755	595	746	---
26	1950	2180	---	2410	508	2470	3210	940	700	792	746	984
27	1870	2130	2250	2350	645	2690	3210	946	718	927	746	1060
28	2050	2130	2250	2350	714	2810	3220	996	718	886	720	1200
29	1950	2200	2360	2470	416	2830	755	---	900	892	869	1080
30	1880	2130	2380	2530	---	2940	683	827	941	889	962	1110
31	1980	---	2230	2230	---	3060	---	901	---	946	950	---
MONTH	1720	2070	2310	2340	1730	1670	2870	1020	919	1020	832	855
YEAR	1620											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
07...	0930	16	.050	--	--
NOV.					
04...	0955	10	.070	--	--
DEC.					
06...	1026	6.6	.040	440	110
JAN.					
07...	1020	4.7	.020	--	--
FEB.					
01...	1515	4.4	.060	--	--
MAR.					
06...	1015	55	.11	140	83
APR.					
14...	0900	9.0	.060	--	--
MAY					
11...	0945	47	.040	--	--
JUNE					
12...	1630	51	.10	180	80
JULY					
05...	0922	41	.060	--	--
AUG.					
07...	0855	60	.070	--	--
SEP.					
05...	0905	54	.040	230	50

06217750 FLY CREEK AT POMPEYS PILLAR, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	2.5	2.0	1.0	0.5	0.0	5.5	9.5	17.0	17.0	18.0	15.5
2	8.5	3.0	2.0	1.0	0.0	0.0	6.0	8.5	16.5	15.0	18.0	15.0
3	8.5	2.5	1.5	0.5	0.5	0.0	4.5	10.0	15.5	14.5	16.5	---
4	10.0	4.0	2.5	0.0	0.5	0.0	4.0	12.0	15.5	13.0	16.5	---
5	11.5	3.0	1.5	0.5	0.5	0.5	6.0	13.5	15.0	14.5	17.5	15.0
6	11.5	1.0	2.0	1.5	0.0	0.5	6.5	10.0	16.0	16.0	---	15.5
7	12.5	1.0	0.5	1.0	1.0	0.5	8.0	8.5	17.5	16.5	18.0	15.5
8	10.0	2.0	0.0	1.0	1.5	0.5	8.5	8.0	18.5	13.0	18.5	15.5
9	9.0	2.5	1.5	1.0	1.0	0.5	8.0	8.5	19.5	18.0	18.5	15.0
10	10.0	3.5	1.0	1.0	0.5	2.0	7.5	10.5	17.0	17.5	19.0	14.5
11	9.5	4.0	1.0	1.0	0.5	2.5	7.5	10.5	17.5	17.0	19.0	13.5
12	11.0	4.5	0.0	1.0	1.0	3.0	9.0	11.5	17.0	15.5	19.5	13.5
13	9.5	5.5	0.5	0.0	1.5	6.0	8.0	11.0	15.5	17.0	19.0	14.0
14	10.0	5.0	0.5	0.0	1.0	6.0	7.5	13.5	15.5	13.0	21.0	13.0
15	7.0	5.0	1.5	0.5	1.0	7.0	8.0	14.5	16.0	15.0	20.0	13.0
16	6.0	5.0	0.0	1.0	1.0	7.5	9.0	16.0	15.5	15.0	20.0	13.5
17	6.0	3.5	1.5	2.0	1.5	8.0	9.0	15.5	17.0	15.0	20.5	14.0
18	8.0	3.0	1.5	0.5	2.0	8.0	7.5	15.0	17.0	15.5	20.5	13.5
19	6.0	3.0	2.0	0.0	1.5	9.0	7.5	15.0	14.5	14.5	19.5	14.5
20	6.5	5.0	2.5	0.0	1.0	9.0	6.5	13.0	13.5	14.0	19.0	12.5
21	8.5	4.0	1.5	0.5	0.5	8.0	8.0	13.5	15.0	13.0	19.0	12.0
22	7.0	4.5	1.0	1.5	0.5	8.0	9.5	13.5	16.0	14.0	18.5	11.5
23	6.5	3.0	0.5	1.0	0.5	9.0	8.0	13.0	18.0	15.0	18.5	11.0
24	7.0	2.5	1.0	1.0	0.0	7.0	8.5	12.5	17.0	17.0	15.5	10.0
25	8.0	3.0	0.0	0.0	0.5	7.0	10.0	13.0	16.0	18.5	17.5	---
26	7.5	3.0	---	0.0	0.0	6.0	8.0	11.5	15.5	18.5	16.5	7.5
27	6.5	4.0	0.5	0.0	0.5	3.0	8.5	12.5	14.0	19.0	16.5	9.0
28	3.0	2.5	0.0	0.0	1.0	2.0	9.5	12.0	15.0	18.5	16.5	7.5
29	2.0	3.0	0.0	0.5	0.0	2.0	12.5	---	16.5	18.5	17.5	12.5
30	2.0	3.5	0.5	1.0	---	3.0	12.5	14.0	17.0	19.0	18.0	12.0
31	2.0	---	1.0	0.5	---	4.0	---	15.5	---	19.0	17.5	---
MONTH	8.0	3.5	1.0	0.5	0.5	4.0	8.0	12.0	16.0	16.0	18.5	13.0
YEAR	8.5											

06279500 BIGHORN RIVER AT KANE, WYO.

LOCATION.--Lat 44°45'31", long 108°10'51", in NW¼NE¼SW¼ sec.9, T.55 N., R.94 W., Big Horn County, sampled at Magcobar Corp. bridge 24.5 miles upstream from gaging station.

DRAINAGE AREA.--15,765 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: March to August 1947, June 1948 to July 1949, December 1949 to September 1953, June 1955 to September 1957, December 1960 to September 1972.
Water temperatures: July to September 1949, October 1950 to September 1972 (at sampling site).
Sediment records: March 1946 to September 1964, December 1969 to September 1972.

EXTREMES.--1971-72:
Specific conductance: Maximum daily observed, 1,060 micromhos Dec. 8; minimum daily, 399 micromhos June 3.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.												
06...	1300	2300	12	40	81	24	100	4.4	186	0	330	15
NOV.												
05...	1510	2770	9.8	0	75	26	80	3.3	200	0	290	15
30...	0930	2410	9.7	200	72	25	78	3.3	184	0	280	14
JAN.												
18...	1420	3230	9.3	—	68	22	66	3.1	183	0	230	12
FEB.												
07...	1210	2360	7.4	210	68	20	62	3.3	176	0	230	12
MAR.												
06...	1520	3020	9.7	100	72	33	76	3.5	189	0	280	15
APR.												
20...	1315	2770	7.1	60	69	25	76	3.0	182	0	260	14
MAY												
16...	1330	2110	5.7	70	71	22	78	3.3	178	0	270	12
JUNE												
21...	1400	7140	9.3	70	56	17	54	2.8	153	0	200	8.3
JULY												
06...	1000	3490	9.8	70	54	17	49	2.6	149	0	180	9.3
31...	1640	2160	9.5	0	65	20	61	3.0	171	0	230	10
SEP.												
07...	1550	2220	13	280	76	21	72	3.3	189	0	270	12

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-AZINON (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)
JAN.										
18...	1420	3230	.00	.0	.00	.00	.00	—	.00	.00
MAR.										
06...	1520	3020	.00	.0	.00	.00	.00	—	.00	.00
JUNE										
21...	1400	7140	.00	.0	.00	.00	.00	.00	.00	.00
SEP..										
07...	1550	2220	.00	.0	.00	.00	.00	.02	.01	.00

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)
MAR.												
06...	1520	3020	<.2	<.2	<1.0	<.2	<.2	<.2	4.5	<.2	<.2	<.2
JUNE												
21...	1400	7140	<.2	<.2	<1.0	<.2	<.2	<.2	<.2	<.2	<.2	<.2
SEPT.												
07...	1550	2220	<.2	<.2	<1.0	<.2	<.2	<.2	8.0	<.2	<.2	<.2

06279500 BIGHORN RIVER AT KANE, WYO.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 25.5°C Aug. 16; minimum, freezing point on many days during December and period of ice cover.

Period of record:
Specific conductance (1955-57, 1960-72): Maximum daily, 3,030 micromhos July 7, 1961; minimum daily, 382 micromhos June 23, 1968.
Water temperatures: Maximum, 29.0°C July 14, 30, 1953, July 12, 1954; minimum, freezing point on many days during winter periods.

REMARKS.--Temperature recorder at gaging station 24.5 miles downstream from sampling site. Recorded water temperatures: Maximum, 22.0°C Aug. 15; minimum, freezing point on many days during December to February. No appreciable inflow between sampling point and gaging station except during periods of intense local precipitation. Stream frozen Dec. 10 to Feb. 26.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
06...	.4	1.8	110	660	.90	4100	300	147	2.3	910	7.9	10.5
NOV.												
09...	.5	.5	80	600	.82	4490	300	140	2.0	995	8.1	3.0
30...	.5	.3	100	572	.79	3720	250	129	2.0	876	7.6	2.0
JAN.												
18...	.4	3.1	70	505	.69	4400	260	110	1.8	740	7.8	.0
FEB.												
07...	.4	.6	70	486	.66	3100	250	106	1.7	747	7.8	.0
MAR.												
06...	.5	1.4	80	589	.80	4800	320	165	1.9	851	7.7	2.5
APR.												
20...	.4	.4	90	545	.74	4080	280	131	2.0	824	7.9	5.5
MAY												
16...	.4	1.2	80	549	.75	3130	270	124	2.1	813	8.0	11.0
JUNE												
21...	.3	1.7	80	423	.58	8150	210	84	1.7	665	7.9	16.0
JULY												
06...	.4	1.4	90	396	.54	3730	200	78	1.5	614	8.0	18.0
31...	.5	1.2	90	480	.65	2800	240	100	1.7	715	8.3	24.0
SEP.												
07...	.5	1.3	100	558	.76	3340	280	125	1.9	822	8.1	17.5

DATE	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALA-THION (UG/L)	METHYL PARA-THION (UG/L)	PARA-THION (UG/L)	PCB (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JAN.										
18...	.00	.00	.00	--	--	--	.0	.04	.00	.00
MAR.										
06...	.00	.00	.00	--	--	--	.0	.03	.00	.00
JUNE										
21...	.00	.00	.00	.00	.00	.00	.0	.00	.00	.00
SEP.										
07...	.00	.00	.00	.00	.00	.00	.0	.03	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
JULY			
19...	1120	2450	1.3

06279500 BIGHORN RIVER AT KANE, WYO.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT. 06...	1300	2300	3	0	--	--	--
NOV. 05...	1510	2770	--	0	0	1	5
JAN. 18...	1420	3230	0	0	1	1	5
APR. 20...	1319	2770	7	0	0	0	2

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT. 06...	--	--	--	--	--	--
NOV. 05...	4	10	0	1	3	30
JAN. 18...	2	30	1	1	0	20
APR. 20...	3	0	4	1	0	20

FIELD DETERMINATIONS

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
JULY 19...	1120	2450	8.4	8.3	710	550	70

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	898	844	---	---	864	847	820	---	554	899	774
2	---	872	857	---	---	777	861	824	402	605	866	---
3	871	886	---	---	---	793	845	841	399	---	925	---
4	925	896	974	---	---	873	832	816	456	600	732	762
5	978	---	937	---	---	868	882	847	449	592	724	809
6	898	891	942	---	---	860	869	849	562	592	713	804
7	940	901	983	---	---	903	854	---	465	592	732	803
8	877	865	1060	---	---	868	847	---	---	597	697	799
9	854	859	1030	---	---	852	850	---	443	613	708	789
10	862	864	---	---	---	871	834	812	438	609	724	786
11	851	889	---	---	---	864	813	795	501	631	752	778
12	859	905	---	---	---	866	810	801	528	613	730	779
13	859	912	---	---	---	861	799	786	516	626	753	782
14	---	898	---	---	---	884	797	823	514	657	---	781
15	---	895	---	---	---	861	822	821	---	641	788	783
16	---	901	---	---	---	922	825	795	511	666	782	770
17	---	885	---	---	---	---	804	713	506	701	774	773
18	---	870	---	---	---	877	803	657	454	692	787	782
19	805	875	---	---	---	874	798	607	536	737	774	779
20	921	---	---	---	---	860	856	604	636	713	---	774
21	917	877	---	---	---	835	857	566	562	771	787	771
22	919	874	---	---	---	831	---	535	528	800	786	775
23	919	854	---	---	---	844	824	507	570	762	---	789
24	845	---	---	---	---	816	824	546	569	718	774	---
25	874	861	---	---	---	---	---	589	573	---	851	807
26	909	---	---	---	---	---	851	584	561	747	---	817
27	914	860	---	---	798	823	862	613	569	743	---	815
28	875	852	---	---	797	856	861	---	551	740	771	812
29	836	860	---	---	854	875	---	632	557	741	768	799
30	856	855	---	---	---	848	811	577	---	729	786	797
31	872	---	---	---	---	842	---	508	---	---	749	---
MONTH	---	879	---	---	---	856	835	699	514	671	774	788

06279500 BIGHORN RIVER AT KANE, WYO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

DAY	OCTOBER MAX	OCTOBER MIN	NOVEMBER MAX	NOVEMBER MIN	DECEMBER MAX	DECEMBER MIN	JANUARY MAX	JANUARY MIN	FEBRUARY MAX	FEBRUARY MIN	MARCH MAX	MARCH MIN
1	10.0	8.5	3.0	3.0	2.0	2.0	0.5	0.5	0.0	0.0	2.0	1.5
2	8.5	7.5	3.0	3.0	2.0	1.0	0.5	0.5	0.0	0.0	2.5	2.0
3	8.0	7.0	3.5	3.0	1.0	1.0	1.5	0.5	0.0	0.0	2.5	2.5
4	9.0	8.0	4.0	3.5	1.0	1.0	1.5	1.0	0.0	0.0	2.5	2.5
5	10.5	9.0	4.0	3.0	1.0	1.0	1.0	0.5	0.0	0.0	2.5	2.5
6	12.0	10.5	3.5	2.5	1.0	1.0	0.5	0.0	0.0	0.0	3.5	2.5
7	12.0	11.5	2.5	2.0	1.0	1.0	0.0	0.0	0.0	0.0	3.5	3.0
8	12.0	11.0	3.0	2.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0	3.0
9	11.5	10.5	3.5	3.0	1.0	0.5	0.0	0.0	0.0	0.0	3.0	3.0
10	12.0	11.0	4.0	3.5	0.5	0.5	0.0	0.0	0.0	0.0	3.5	3.0
11	12.0	11.5	4.0	4.0	0.5	0.5	0.0	0.0	0.0	0.0	4.0	3.5
12	12.0	11.0	5.0	4.0	0.5	0.0	0.0	0.0	0.0	0.0	5.0	4.0
13	11.0	10.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	5.0
14	10.0	9.0	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	6.0	5.5
15	9.0	7.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	5.5
16	7.0	6.5	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	6.0	5.5
17	7.0	6.5	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.0
18	7.0	6.5	3.0	2.5	0.0	0.0	0.5	0.0	0.0	0.0	6.5	6.0
19	6.5	5.5	2.5	2.0	0.0	0.0	0.5	0.0	0.0	0.0	6.5	6.5
20	6.0	5.5	2.5	2.0	0.0	0.0	0.5	0.5	0.0	0.0	6.5	6.5
21	7.0	6.0	2.5	2.5	0.0	0.0	0.5	0.0	0.0	0.0	6.5	6.0
22	7.5	7.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	6.5	6.0
23	7.5	7.0	3.0	2.5	0.0	0.0	0.5	0.0	0.0	0.0	6.5	6.5
24	7.5	7.0	3.0	2.5	0.0	0.0	1.0	0.5	0.0	0.0	6.5	6.0
25	8.5	7.5	2.5	2.5	1.0	0.0	1.0	1.0	0.0	0.0	6.0	6.0
26	8.5	8.0	2.5	2.5	1.5	1.0	1.5	1.0	0.0	0.0	6.0	6.0
27	8.5	5.5	2.5	2.5	1.5	0.5	1.5	1.0	0.0	0.0	6.0	5.0
28	5.5	3.0	2.5	2.5	1.5	0.5	1.5	0.5	0.0	0.0	5.0	5.0
29	3.0	2.5	2.5	2.0	1.0	0.5	0.5	0.0	1.5	0.0	5.0	4.5
30	2.5	2.0	2.0	2.0	0.5	0.5	0.0	0.0	---	---	4.5	4.5
31	3.0	2.5	---	---	0.5	0.5	0.0	0.0	---	---	5.5	4.5
MONTH	12.0	2.0	5.5	2.0	2.0	0.0	1.5	0.0	1.5	0.0	6.5	1.5

DAY	APRIL MAX	APRIL MIN	MAY MAX	MAY MIN	JUNE MAX	JUNE MIN	JULY MAX	JULY MIN	AUGUST MAX	AUGUST MIN	SEPTEMBER MAX	SEPTEMBER MIN
1	5.5	5.5	7.5	7.0	14.5	14.0	20.0	19.5	19.0	17.5	17.0	16.5
2	6.0	5.5	7.5	7.0	14.5	14.0	19.5	17.5	18.0	17.0	17.0	17.0
3	6.0	5.5	9.0	7.5	14.5	14.0	17.5	16.0	17.0	16.0	17.0	17.0
4	6.0	5.5	9.5	8.5	14.5	13.5	16.5	15.5	16.0	15.5	17.5	16.5
5	6.0	5.5	9.5	9.5	14.5	13.5	18.0	16.0	16.5	15.5	17.5	17.5
6	6.5	6.0	9.5	9.0	15.5	14.5	18.0	17.5	17.5	16.5	17.5	17.5
7	7.0	6.5	9.0	8.5	16.5	15.5	19.0	17.5	18.5	17.5	18.0	16.5
8	7.0	6.5	8.5	8.0	17.0	16.5	20.0	19.0	19.5	18.0	17.5	17.0
9	7.0	7.0	8.5	8.0	17.0	16.0	20.0	19.5	20.5	19.0	17.5	17.0
10	7.5	7.0	9.0	8.5	16.0	15.0	20.5	19.0	21.0	19.5	17.5	16.5
11	7.5	7.5	9.0	9.0	17.0	16.0	20.0	19.5	20.5	19.5	17.0	16.0
12	8.0	7.5	9.0	9.0	17.0	16.5	21.0	19.5	21.0	20.0	17.5	16.5
13	8.0	7.5	9.5	8.5	17.0	16.0	21.0	20.0	21.0	19.5	17.0	16.5
14	7.5	7.0	10.5	9.5	17.0	16.5	20.5	19.0	20.5	19.0	17.0	16.0
15	7.5	7.0	11.0	10.5	17.5	17.0	20.0	18.5	22.0	20.0	17.0	16.0
16	8.0	7.5	13.0	11.0	18.0	17.0	20.0	19.0	21.5	20.5	17.0	16.0
17	8.0	8.0	13.0	12.5	18.0	17.5	19.0	17.5	21.5	20.0	17.0	16.0
18	8.0	6.5	12.5	12.5	18.0	17.5	19.5	18.0	21.0	20.0	17.0	16.0
19	6.5	6.0	12.5	12.0	18.0	16.5	18.5	15.0	20.5	19.5	17.0	16.0
20	6.5	6.0	12.0	11.0	16.5	16.0	15.5	15.0	19.5	18.5	16.0	14.5
21	7.5	6.5	12.0	11.5	17.0	16.0	16.0	15.0	19.0	18.0	15.5	14.5
22	8.0	7.5	12.0	11.5	18.5	17.0	17.0	15.5	19.0	18.0	14.5	14.5
23	8.0	7.5	11.5	11.5	18.5	18.0	18.0	16.5	19.0	16.5	15.0	14.5
24	8.0	7.5	12.0	11.0	18.5	18.0	19.5	18.0	16.5	16.0	14.5	13.5
25	8.0	7.5	12.0	12.0	18.5	18.0	19.5	18.5	16.5	16.0	13.5	12.5
26	7.5	6.5	12.0	11.0	18.5	18.0	19.5	18.0	16.5	16.5	12.5	11.5
27	8.0	7.0	12.0	11.5	18.0	17.5	19.5	18.0	18.0	16.5	12.0	11.5
28	9.0	8.0	12.5	11.5	18.5	17.5	19.5	17.5	19.0	18.0	12.0	12.0
29	9.0	8.5	13.5	12.5	19.5	18.5	19.5	18.5	19.0	18.5	12.0	11.5
30	9.0	7.5	14.0	13.5	20.0	19.5	19.5	19.0	19.0	18.5	12.5	11.5
31	---	---	14.0	13.5	---	---	19.0	18.0	19.0	17.0	---	---
MONTH	9.0	5.5	14.0	7.0	20.0	13.5	21.0	15.0	22.0	15.5	18.0	11.5
YEAR	22.0	0.0										

06279500 BIGHORN RIVER AT KANE, WYO.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	0.5	2.0	---	---	2.0	9.5	6.0	---	21.0	19.0	19.0
2	---	---	1.5	---	---	1.5	11.5	7.0	17.0	17.0	19.0	---
3	9.0	---	0.5	---	---	1.5	8.5	9.5	16.5	---	19.5	---
4	7.0	---	0.0	---	---	3.0	9.0	11.5	14.5	19.0	20.5	18.0
5	11.0	---	0.0	---	---	4.5	9.5	12.0	17.0	16.0	21.5	16.5
6	11.5	---	0.0	---	---	5.0	12.0	11.0	14.5	16.5	22.5	16.5
7	12.0	---	0.0	---	---	3.5	11.0	---	19.0	17.0	23.5	16.0
8	12.0	---	0.0	---	---	5.5	11.0	---	---	24.5	24.0	15.0
9	12.5	6.0	0.0	---	---	4.5	9.0	---	16.5	21.5	25.0	16.0
10	12.0	6.0	---	---	---	6.5	7.0	12.5	19.0	22.5	25.0	16.5
11	11.5	7.0	---	---	---	8.5	6.0	13.0	19.5	21.5	24.5	16.0
12	11.0	6.5	---	---	---	9.0	9.0	12.0	17.5	21.5	23.5	16.5
13	12.0	7.0	---	---	---	9.5	9.0	14.5	17.0	22.5	23.0	16.5
14	---	6.0	---	---	---	9.5	8.0	17.0	17.0	22.5	---	16.5
15	---	5.0	---	---	---	9.0	14.5	17.0	---	21.5	25.0	17.0
16	---	4.0	---	---	---	9.5	14.0	18.0	17.5	21.5	25.5	18.0
17	---	2.5	---	---	---	---	9.5	17.5	17.5	22.5	25.0	17.5
18	---	2.0	---	---	---	10.0	7.0	17.0	18.0	23.0	23.5	17.0
19	5.5	1.5	---	---	---	10.0	6.5	14.0	16.0	17.0	23.0	17.5
20	9.0	---	---	---	---	7.5	11.0	14.5	16.0	18.0	---	16.0
21	9.0	5.0	---	---	---	7.0	11.5	15.0	18.0	18.0	21.5	15.5
22	10.5	5.0	---	---	---	7.0	---	12.0	19.5	20.5	21.0	14.5
23	10.5	9.0	---	---	---	7.0	14.5	11.5	20.0	22.0	---	14.5
24	10.0	---	---	---	---	7.0	14.5	11.5	20.5	22.0	17.0	---
25	9.0	4.0	---	---	---	---	---	15.0	20.0	---	21.5	18.5
26	9.0	---	---	---	---	---	11.0	18.5	17.5	21.5	---	12.5
27	8.0	3.0	---	---	3.0	4.5	13.5	15.0	19.5	20.5	---	12.0
28	3.0	3.5	---	---	3.0	5.0	14.0	---	20.5	21.5	22.0	11.5
29	1.0	2.0	---	---	2.5	4.5	---	17.0	22.0	21.5	22.0	11.5
30	0.5	2.5	---	---	---	6.5	9.0	17.0	---	23.5	21.5	11.5
31	1.0	---	---	---	---	8.5	---	19.0	---	---	18.5	---
MONTH	---	---	---	---	---	6.5	10.5	13.5	18.0	20.5	22.0	15.5

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
OCT.											
06...	1300	10.5	2300	2270	14100	74	88	93	95	99	100
NOV.											
05...	1510	3.0	2770	457	3420	--	--	--	--	--	--
30...	0930	2.0	2410	134	872	--	--	--	--	--	--
JAN.											
18...	1420	.0	3230	214	1870	--	--	--	--	--	--
FEB.											
07...	1210	.0	2360	130	828	--	--	--	--	--	--
MAR.											
06...	1520	2.5	3020	807	6580	30	44	74	87	99	100
MAY											
03...	1305	13.0	1940	283	1480	--	--	--	--	--	--
16...	1330	11.0	2110	326	1860	34	57	81	89	100	--
JUNE											
21...	1400	16.0	7140	1590	30700	22	30	55	81	96	100
JULY											
06...	1000	18.0	3490	573	5400	33	42	58	78	98	100
31...	1640	24.0	2160	244	1420	28	39	72	86	100	--
SEP.											
07...	1550	17.5	2220	232	1390	--	--	--	--	--	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	NUMBER OF SAMPLING POINTS	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM
MAR.							
06...	1520	2.5	3020	10	1	2	9
JUNE							
21...	1400	16.0	7140	9	0	1	6
SEP.							
07...	1550	17.5	2220	5	1	2	34

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM	BED MAT. FALL DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
MAR.							
06...	24	34	39	47	65	92	94
JUNE							
21...	27	32	33	35	45	63	83
SEP.							
07...	90	96	96	99	100	--	--

06287000 BIGHORN RIVER NEAR ST. XAVIER, MONT.

LOCATION.--Lat 45°19'00", long 107°55'05", in NW¼NE¼ sec.16, T.6 S., R.31 E., Big Horn County, at gaging station 800 ft downstream from Yellowtail afterbay dam, 1,500 ft downstream from Lime Kiln Creek, and 14 miles southwest of St. Xavier.

DRAINAGE AREA.--19,667 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1966 to September 1972.
Water temperatures: December 1962 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 557 mg/l Feb. 1-29; minimum, 381 mg/l Aug. 1-31.
Hardness: Maximum, 270 mg/l on several days during February to July; minimum, 200 mg/l Aug. 1-31.
Specific conductance: Maximum daily, 865 micromhos May 30, 31; minimum daily, 580 micromhos Aug. 2.
Water temperatures: Maximum, 17.0°C Sept. 9; minimum, 1.0 C on many days during February and March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	5170	--	11	0	66	22	76	3.6	184	0	240
NOV.												
01-30	--	5070	--	12	0	64	21	73	3.8	180	0	240
DEC.												
01-31	--	4240	--	11	0	62	21	64	3.0	181	0	230
JAN.												
01-31	--	4000	--	12	10	62	20	68	3.4	187	0	230
FEB.												
01-29	--	4000	--	11	10	72	23	75	3.7	191	6	260
MAR.												
01-31	--	4620	--	11	10	70	22	73	3.6	200	0	250
APR.												
01-30	--	6700	--	10	30	70	23	72	3.9	201	0	240
MAY												
01-31	--	5060	--	9.7	10	69	23	78	3.6	196	C	250
JUNE												
01-30	--	6130	--	8.6	10	71	23	70	3.4	189	0	240
JULY												
01-14	--	4190	--	7.7	10	69	23	68	3.1	187	0	240
15-31	--	3700	--	8.1	10	59	18	56	2.7	161	0	190
AUG.												
01-31	--	3230	--	9.4	30	53	16	48	2.5	153	0	170
SEP.												
01-30	--	3140	--	10	10	56	17	49	3.0	154	0	180
WTD. AVG.	--	--	--	10	11	66	21	69	3.4	185	0	232
TIME WTD. AVG.	--	4600	--	10	11	65	21	67	3.4	182	0	228
TONS PER DAY	--	--	--	128	0	818	265	854	43	2300	5	2890
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
08...	1620	4460	5.0	11	0	66	22	73	3.4	185	0	240
MAR.												
02...	1225	4480	2.0	13	10	72	25	74	3.6	208	0	260
JUNE												
08...	1345	6200	8.0	9.2	20	69	23	72	3.6	191	0	250
SEP.												
06...	1140	3170	15.5	10	30	54	17	49	2.5	149	0	180

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06287000 BIGHORN RIVER NEAR ST. XAVIER, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 842 mg/l Jan. 1-31, 1967; minimum, 322 mg/l Aug. 1-31, 1971.
Hardness: Maximum, 394 mg/l Mar. 1-31, 1967; minimum, 160 mg/l Sept. 1-18, 1971.
Specific conductance: Maximum daily, 1,180 micromhos on several days during 1966-67; minimum daily, 492 micromhos Aug. 28, 1971.
Water temperatures: Maximum, 24.5°C on several days during 1963-65; minimum, freezing point on many days during winter periods most years prior to regulation.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Dissolved solids, 565 mg/l Mar. 2; hardness, 280 mg/l Mar. 2. Thermograph records furnished by Montana Fish and Game Department. Flow regulated since Nov. 3, 1965, by Bighorn Lake.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	9.7	.4	.15	--	520	.71	7260	260	100	2.1	810	8.2
NOV.												
01-30	11	.5	.00	--	514	.70	7040	250	99	2.0	789	7.8
DEC.												
01-31	9.7	.4	.21	--	491	.67	5620	240	93	1.8	755	8.2
JAN.												
01-31	11	.3	.24	--	500	.68	5400	240	84	1.9	747	8.2
FEB.												
01-29	11	.5	.23	.010	557	.76	6020	270	110	2.0	822	8.4
MAR.												
01-31	11	.4	.28	.010	541	.74	6750	270	100	2.0	788	8.1
APR.												
01-30	11	.4	.30	.000	531	.72	9610	270	100	1.9	813	7.9
MAY												
01-31	12	.3	.20	.000	543	.74	7420	270	110	2.1	832	8.1
JUNE												
01-30	10	.4	.04	.000	520	.71	8610	270	120	1.8	805	7.5
JULY												
01-14	8.7	.4	.18	.000	513	.70	5800	270	110	1.8	782	8.1
15-31	6.6	.3	.23	.000	421	.57	4210	220	89	1.6	664	7.7
AUG.												
01-31	6.4	.4	.00	.000	381	.52	3320	200	73	1.5	605	7.0
SEP.												
01-30	7.0	.4	.17	.000	399	.54	3380	210	83	1.5	630	7.7
WTD. AVG.	10	.4	.17	--	505	.69	--	253	99	1.9	771	7.9
TIME WTD. AVG.	9.8	.4	.17	--	496	.68	--	249	97	1.9	759	7.9
TONS PER DAY	124	4.9	2.1	--	6270	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
08...	10	.3	.42	--	519	.71	6250	260	100	2.0	790	8.0
MAR.												
02...	13	.4	.44	--	565	.77	6830	280	110	1.9	835	7.9
JUNE												
08...	11	.6	.24	.000	534	.73	8940	270	110	1.9	818	6.6
SEP.												
06...	6.4	.4	.39	.010	394	.54	3370	200	83	1.5	611	7.7

06287000 BIGHORN RIVER NEAR ST. XAVIER, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
12...	1225	5220	.060	--	--
NOV.					
09...	1025	4920	.10	--	--
DEC.					
08...	1620	4460	.030	120	0
JAN.					
17...	1055	3990	.030	--	--
31...	1235	3970	.050	--	--
MAR.					
02...	1225	4480	.020	140	10
APR.					
10...	1150	6580	.020	--	--
MAY					
09...	1200	6400	.020	--	--
JUNE					
08...	1345	6200	.010	160	10
JULY					
06...	1330	4740	.010	--	--
AUG.					
08...	1035	3190	.020	--	--
SEP.					
06...	1140	3170	.040	90	10

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	792	793	789	751	805	821	788	803	818	788	594	622
2	806	787	774	754	805	830	786	805	818	782	580	622
3	811	787	804	751	816	797	801	805	813	784	582	622
4	770	778	778	713	805	793	801	803	813	780	582	610
5	806	778	768	720	816	799	801	789	813	784	585	610
6	815	778	778	713	816	758	801	805	813	790	585	610
7	821	787	798	718	828	758	805	808	814	778	608	594
8	---	759	789	720	816	777	795	808	814	782	594	594
9	815	759	720	717	808	775	801	803	811	772	594	594
10	815	759	711	715	825	759	795	803	804	770	594	594
11	811	759	774	715	816	759	795	805	802	764	603	600
12	828	772	774	718	828	773	788	810	802	754	603	600
13	786	778	768	717	828	793	816	808	804	734	636	604
14	792	778	740	720	816	793	808	806	796	733	636	604
15	780	720	718	725	823	767	805	805	796	689	613	604
16	770	778	716	718	830	767	810	824	783	689	613	616
17	770	742	738	718	830	773	816	827	780	694	613	616
18	770	776	711	725	830	781	816	825	780	690	615	604
19	---	797	735	725	830	787	825	827	778	686	619	614
20	770	778	729	736	828	793	---	822	776	689	619	619
21	768	776	740	743	830	787	816	824	776	666	619	627
22	770	774	738	736	830	787	808	827	772	651	619	627
23	768	774	738	736	828	781	808	825	772	---	619	679
24	768	774	748	743	839	795	823	827	772	641	640	679
25	821	778	738	790	832	795	808	824	774	631	638	706
26	790	778	756	787	830	795	808	822	774	638	634	732
27	794	778	756	782	830	797	808	831	778	628	639	750
28	790	776	720	776	830	787	808	822	778	628	634	732
29	826	768	720	803	839	787	808	831	778	628	637	750
30	770	774	720	790	---	793	816	865	782	621	637	732
31	774	---	720	803	---	787	---	865	---	621	637	---
MONTH	791	773	749	741	824	785	806	818	793	710	614	639
YEAR	753											

06287000 BIGHORN RIVER NEAR ST. XAVIER, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

DAY	OCTOBER MAX	OCTOBER MIN	NOVEMBER MAX	NOVEMBER MIN	DECEMBER MAX	DECEMBER MIN	JANUARY MAX	JANUARY MIN	FEBRUARY MAX	FEBRUARY MIN	MARCH MAX	MARCH MIN
1	14.5	14.0	11.0	11.0	6.0	6.0	4.5	4.5	1.5	1.5	1.0	1.0
2	14.5	14.0	11.0	11.0	6.0	6.0	4.5	4.5	1.5	1.5	1.0	1.0
3	14.5	14.0	11.0	11.0	6.5	6.0	4.5	4.0	1.5	1.5	1.0	1.0
4	14.5	14.0	11.5	11.0	6.0	6.0	4.0	4.0	1.5	1.5	1.0	1.0
5	14.5	14.0	11.0	10.5	6.5	6.0	4.0	3.5	1.5	1.5	1.5	1.0
6	14.5	14.0	10.5	10.0	6.5	6.0	4.0	3.5	1.5	1.5	1.5	1.5
7	14.5	14.0	10.5	10.0	6.0	5.5	4.0	4.0	1.5	1.5	1.5	1.5
8	14.5	14.0	10.5	10.0	6.0	5.5	4.0	3.5	1.5	1.5	1.5	1.5
9	14.0	14.0	10.5	10.0	6.5	6.0	4.0	3.5	1.5	1.0	1.5	1.5
10	14.5	14.0	10.5	10.0	6.5	6.5	3.5	3.5	1.5	1.0	2.0	1.5
11	14.0	14.0	10.0	10.0	6.5	6.0	3.5	3.5	1.5	1.0	1.5	1.5
12	14.0	13.5	10.0	9.5	6.0	5.5	3.5	3.5	1.5	1.5	2.0	1.5
13	14.0	13.5	9.5	9.0	6.0	5.5	3.5	3.0	1.5	1.0	2.0	2.0
14	13.5	13.0	9.0	8.5	6.0	5.5	3.5	3.0	1.5	1.0	2.0	2.0
15	13.0	13.0	8.5	8.5	6.0	6.0	3.5	3.5	1.0	1.0	2.0	2.0
16	13.0	13.0	8.5	8.0	6.0	5.5	3.5	3.0	1.5	1.0	3.0	2.0
17	13.0	13.0	8.0	8.0	6.0	5.5	3.5	3.0	1.5	1.0	3.0	2.0
18	13.0	12.0	8.0	7.0	6.0	6.0	3.0	3.0	1.5	1.0	2.0	2.0
19	13.0	12.0	9.0	7.0	6.0	6.0	3.0	3.0	1.5	1.0	2.0	2.0
20	13.0	13.0	9.0	8.5	6.0	5.5	3.0	3.0	1.5	1.0	2.0	2.0
21	13.0	13.0	8.5	7.0	5.5	5.5	3.0	3.0	1.0	1.0	2.0	2.0
22	13.0	13.0	7.0	7.0	5.5	5.5	3.0	3.0	1.0	1.0	2.0	2.0
23	13.0	13.0	7.0	6.5	5.5	5.5	3.0	2.0	1.0	1.0	2.0	2.0
24	13.0	13.0	7.0	6.5	5.5	5.5	2.0	2.0	1.0	1.0	2.0	2.0
25	13.0	12.0	6.5	6.5	5.5	5.0	2.0	2.0	1.0	1.0	2.0	2.0
26	12.0	12.0	6.5	6.5	5.0	5.0	2.0	2.0	1.0	1.0	2.0	2.0
27	12.0	11.5	6.5	6.0	5.0	4.5	2.0	2.0	1.5	1.0	2.0	2.0
28	11.5	11.5	6.0	6.0	5.0	4.5	2.0	1.5	1.5	1.5	2.0	2.0
29	11.5	11.0	6.0	6.0	5.0	5.0	1.5	1.5	1.5	1.0	2.0	2.0
30	11.0	11.0	6.0	6.0	5.0	4.5	1.5	1.5	---	---	2.0	2.0
31	11.0	11.0	---	---	4.5	4.5	2.0	1.5	---	---	2.0	2.0
MONTH	14.5	11.0	11.5	6.0	6.5	4.5	4.5	1.5	1.5	1.0	3.0	1.0

DAY	APRIL MAX	APRIL MIN	MAY MAX	MAY MIN	JUNE MAX	JUNE MIN	JULY MAX	JULY MIN	AUGUST MAX	AUGUST MIN	SEPTEMBER MAX	SEPTEMBER MIN
1	2.0	2.0	4.0	3.5	6.0	6.0	---	---	15.5	15.0	16.5	16.0
2	2.0	2.0	4.0	3.5	6.5	6.0	---	---	15.5	15.5	16.5	16.0
3	2.0	2.0	4.0	3.5	6.5	6.0	---	---	15.5	15.0	16.0	16.0
4	2.0	2.0	4.0	3.5	6.5	6.5	---	---	16.0	15.5	16.5	16.0
5	3.0	2.0	4.0	4.0	6.5	6.5	---	---	16.0	15.5	16.5	16.0
6	3.0	2.0	4.0	4.0	7.0	6.5	---	---	16.0	15.5	16.5	16.5
7	3.0	2.0	4.0	4.0	7.0	6.5	13.5	13.0	16.0	15.5	16.5	16.5
8	3.0	2.0	4.0	4.0	7.0	7.0	13.5	13.0	16.5	15.5	16.5	16.0
9	3.0	2.0	4.5	4.0	7.0	7.0	13.5	13.0	16.5	16.0	17.0	16.5
10	3.0	2.0	4.5	4.0	8.0	7.0	13.5	13.5	16.0	16.0	16.5	16.5
11	3.0	2.0	4.5	4.0	8.0	7.0	13.5	13.5	16.5	16.0	16.5	16.0
12	3.0	2.0	4.5	4.5	8.0	8.0	14.0	13.5	16.5	16.0	16.5	16.5
13	2.0	2.0	5.0	4.5	8.5	8.0	14.0	13.5	16.5	16.0	16.5	16.0
14	3.0	2.0	5.0	4.5	8.5	8.0	14.0	13.5	16.5	16.0	16.5	16.0
15	3.0	2.0	5.0	4.5	8.5	8.0	14.5	14.0	16.5	16.0	16.5	16.0
16	3.0	3.0	5.0	4.5	9.0	8.0	14.5	14.0	16.5	16.0	16.5	16.5
17	3.0	3.0	5.0	4.5	9.0	8.5	14.5	14.0	16.5	16.0	16.5	16.5
18	3.0	2.0	5.0	4.5	11.5	8.5	15.0	14.0	16.0	16.0	16.5	16.5
19	3.0	2.0	5.0	4.5	11.5	11.5	14.5	14.0	16.0	16.0	16.5	16.0
20	3.0	3.0	5.0	4.5	---	---	14.5	14.0	16.5	16.0	16.5	16.0
21	3.5	3.0	5.5	5.0	---	---	15.0	14.5	16.5	16.0	16.5	16.0
22	3.5	3.0	5.5	5.0	---	---	15.0	14.5	16.5	16.0	16.5	16.0
23	3.5	3.0	5.5	5.0	---	---	15.5	14.5	16.5	16.0	16.0	16.0
24	3.5	3.0	5.5	5.0	---	---	15.5	15.0	16.5	16.0	16.5	16.0
25	3.5	3.5	5.5	5.5	---	---	15.5	15.0	16.5	16.0	16.0	15.5
26	3.5	3.5	6.0	5.5	---	---	15.5	15.0	16.5	16.0	16.5	16.0
27	3.5	3.5	6.5	6.0	---	---	15.5	15.0	16.5	16.0	16.0	16.0
28	3.5	3.5	6.5	6.0	---	---	15.5	15.0	16.5	16.0	16.0	15.5
29	3.5	3.5	6.5	6.0	---	---	15.5	15.0	16.5	16.0	16.0	15.5
30	3.5	3.5	6.5	6.0	---	---	15.5	15.0	16.5	16.0	16.0	15.5
31	---	---	6.5	6.0	---	---	15.5	15.0	16.5	16.0	---	---
MONTH	3.5	2.0	6.5	3.5	---	---	15.5	13.0	16.5	15.0	17.0	15.5
YEAR	17.0	1.0										

06288200 BEAUVAIS CREEK NEAR ST. XAVIER, MONT.
(Hydrologic bench-mark station)

LOCATION.--Lat 45°28'40", long 108°00'33", on west line of sec.15, T.4 S., R.30 E., Big Horn County, at gaging station 1 mile downstream from Point Creek, 3 miles upstream from Muddy Creek, and 14 miles west of St. Xavier.

DRAINAGE AREA.--100 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED, PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
06...	1430	8.0	12.0	12	40	170	35	79	4.2	202	0	540
NOV.												
10...	1200	14	2.0	14	10	190	42	92	3.2	259	0	650
DEC.												
09...	1500	1.5	.0	17	0	240	54	45	2.6	263	0	700
JAN.												
31...	1230	5.7	.0	16	50	230	53	100	4.8	290	0	760
FEB.												
24...	1230	45	.0	7.5	30	53	14	76	4.3	134	0	240
MAR.												
16...	1230	68	--	9.5	20	90	24	51	3.3	222	0	240
APR.												
12...	1100	39	8.0	11	30	160	39	43	2.1	249	0	420
MAY												
16...	1300	38	18.0	11	30	140	36	48	2.5	227	0	410
JUNE												
12...	1130	17	18.5	14	20	180	40	35	2.5	196	0	490
JULY												
20...	1200	10	14.0	13	20	200	45	27	2.0	172	0	590
AUG.												
21...	1215	7.9	15.5	14	110	230	46	42	4.9	206	0	670
SEP.												
15...	1100	6.1	13.0	13	60	230	45	27	2.5	174	0	640
WTD. AVG.	--	--	--	11	29	131	31	55	3.2	209	0	389
TIME WTD. AVG.	--	22	--	13	35	176	39	55	3.2	216	0	529
TONS PER DAY	--	--	--	.6	0	7.7	1.8	3.2	.2	12	0	23

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
OCT.						
06...	1430	8.0	.11	2.4	0	800
NOV.						
10...	1200	14	.080	2.5	60	1210
DEC.						
09...	1500	1.5	.060	.9	250	1340
JAN.						
31...	1230	5.7	.12	1.8	30	1340
FEB.						
24...	1230	45	.10	3.2	30	560
MAR.						
16...	1230	68	.10	1.6	75	--
APR.						
12...	1100	39	.020	1.5	50	836
MAY						
16...	1300	38	.050	1.2	50	824
JUNE						
12...	1130	17	.030	1.9	30	992
JULY						
20...	1200	10	.030	1.1	20	1080
AUG.						
21...	1215	7.9	.060	1.7	20	1180
SEP.						
15...	1100	6.1	.030	1.0	20	--

06288200 BEAUVAIS CREEK NEAR ST. XAVIER, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: September 1967 to September 1972.
Sediment records: February 1968 to September 1972.

REMARKS.--Flow not regulated except for small diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
06...	2.7	.9	.13	--	944	1.09	17.3	570	400	1.4	1290	7.8
NOV.												
10...	4.3	.3	.12	--	1120	1.65	46.4	650	430	1.6	1470	8.0
DEC.												
09...	2.6	.5	.20	--	1190	1.82	5.43	820	610	.7	1530	7.7
JAN.												
31...	5.8	.5	.27	--	1310	1.82	20.6	790	550	1.5	1740	7.5
FEB.												
24...	1.8	.4	.14	--	464	.76	68.0	190	80	2.4	711	7.7
MAR.												
16...	2.9	.4	.17	--	533	.72	99.2	320	140	1.2	782	8.1
APR.												
12...	1.9	.4	.04	.010	800	1.14	88.0	560	360	.8	1090	7.9
MAY												
16...	1.9	.4	.03	.000	762	1.12	84.5	500	310	.9	1080	8.0
JUNE												
12...	2.7	.4	.29	.010	862	1.35	46.1	610	450	.6	1200	7.0
JULY												
20...	8.0	.4	.03	.010	970	1.47	29.7	680	540	.5	1270	7.5
AUG.												
21...	2.1	.6	.07	.020	1110	1.60	25.2	760	590	.7	1460	7.9
SEP.												
15...	2.3	.5	.00	.020	1050	1.43	17.3	760	620	.4	1360	8.0
WTD. AVG.	2.7	.4	.12	--	727	1.05	--	455	283	1.2	1020	7.9
TIME WTD. AVG.	3.3	.5	.12	--	926	1.33	--	601	423	1.1	1250	7.8
TONS PER DAY	.2	.0	.01	--	43	--	--	--	--	--	--	--

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	IMME-DIATE COLI-FORM (COL. PER 100 ML)
OCT.							
06...	1430	12.0	26.0	1300	9.8	7.9	20000
NOV.							
10...	1200	2.0	15.5	1500	12.6	7.4	50000
DEC.							
09...	1500	.0	.0	1100	12.4	7.4	920
JAN.							
31...	1230	.0	-5.0	1500	10.0	7.6	400
FEB.							
24...	1230	.0	-5.0	650	12.0	8.3	1700
MAR.							
16...	1230	--	20.0	770	9.8	8.5	760
APR.							
12...	1100	8.0	14.0	1100	10.6	8.1	8800
MAY							
16...	1300	18.0	27.5	1000	8.4	8.2	12000
JUNE							
12...	1130	18.5	19.5	--	7.2	7.8	180000
JULY							
20...	1200	14.0	15.0	1150	9.2	7.6	32000
AUG.							
21...	1215	15.5	21.5	1500	8.2	8.1	500000
SEP.							
15...	1100	13.0	19.5	1350	8.6	8.1	95000

06288200 BEAUVAIS CREEK NEAR ST. XAVIER, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)
SEP. 15...	1100	6.1	.00	.00	.0	.00	.00	.00	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)
SEP. 15...	1100	6.1	<.2	<.2	<1.0	<.2	<.2	<.2	<.2	<.2	<.2	<.2

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
MAR. 16...	1230	68	100	3	0	1	20
SEP. 15...	1100	6.1	0	2	0	1	6

06288200 BEAUVAIS CREEK NEAR ST. XAVIER, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	MALA-THION (UG/L)	PARA-THION (UG/L)	DI-AZINON (UG/L)	METHYL PARA-THION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
SEP. 15...	.00	.00	.00	.00	.00	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
SEP. 15...	1100	6.1	13.0	3.2	13	3.5	4.2	1200	6.0	3.3	3.9	63

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
MAR. 16...	14	20	0	8	1100	30
SEP. 15...	3	30	3	2	3400	20

SUSPENDED-SEDIMENT FOR SELECTED DAYS, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)
OCT. 06...	1430	12.0	8.0	2400	52
NOV. 10...	1130	2.0	14	800	30
DEC. 09...	1500	.0	1.5	300	1.2
JAN. 31...	1230	.0	5.7	37	.57
FEB. 24...	1230	.0	45	660	80
MAR. 16...	1230	10.5	68	308	57
APR. 12...	1050	8.0	39	203	21
MAY 16...	1255	18.0	38	256	26
JUNE 12...	1130	18.0	17	396	18
JULY 20...	1200	14.0	10	158	4.3
AUG. 21...	1215	15.5	7.9	500	11
SEP. 15...	1100	19.5	6.1	103	1.7

06288500 BIGHORN RIVER NEAR HARDIN, MONT.

LOCATION.--Lat 45°43'46", long 107°34'52", in NE¼SE¼ sec.24, T.1 S., R.33 E., Big Horn County, 0.5 mile upstream from former gaging station at city water plant on left bank, 1 mile upstream from Little Bighorn River, 1.4 miles east of Hardin, and at mile 41.0.

DRAINAGE AREA.--20,722 sq mi (at former gaging station).

PERIOD OF RECORD.--Chemical analyses: January to September 1951, July 1969 to September 1972.
Water temperatures: December 1962 to September 1972.

EXTREMES.--1971-72:
Water temperatures: Maximum, 21.0°C Aug. 17; minimum, freezing point on several days during January and February.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
05...	1300	5020	68	23	--	270	11	--	574	.78	7780
NOV.											
10...	1430	4690	65	20	--	250	9.6	--	550	.75	6970
DEC.											
08...	1200	4370	64	23	--	--	10	--	670	.91	7910
JAN.											
06...	1400	4000	57	21	--	230	9.6	--	514	.70	5550
FEB.											
02...	1600	4000	72	25	--	260	11	--	628	.85	6780
MAR.											
08...	1430	4860	71	23	--	260	9.4	--	538	.73	7060
APR.											
12...	1430	6550	74	25	--	260	12	--	580	.79	10300
MAY											
17...	1300	4940	75	24	--	270	12	--	584	.79	7790
JUNE											
12...	1500	5640	69	24	--	250	10	--	632	.86	9620
JULY											
20...	1430	3660	62	20	60	200	7.0	.4	472	.64	4660
AUG.											
21...	1600	2860	57	17	51	190	7.3	.4	680	.92	5250
SEP.											
15...	1400	2960	53	17	51	180	6.0	.4	398	.54	3180

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
05...	1300	15.0	21.0	850	8.4	8.0	--	--	490
NOV.									
10...	1430	10.0	15.0	820	12.0	8.0	--	--	15
DEC.									
08...	1200	1.0	-8.0	750	13.2	7.9	--	--	21
JAN.									
06...	1400	3.0	9.0	740	14.4	7.5	--	--	30
FEB.									
02...	1600	.0	-6.0	820	13.2	8.1	--	--	6
MAR.									
08...	1430	2.5	12.0	870	11.2	8.3	--	--	50
APR.									
12...	1430	6.5	13.0	770	12.4	8.1	--	--	5
MAY									
17...	1300	9.0	25.5	800	12.8	7.8	--	--	57
JUNE									
12...	1500	13.5	20.5	--	12.4	8.2	--	--	61
JULY									
20...	1430	14.5	15.0	750	9.2	7.9	149	19000	180
AUG.									
21...	1600	20.5	25.0	640	8.2	7.9	125	41000	210
SEP.									
15...	1400	17.5	22.0	620	12.6	8.7	108	700	140

06288500 BIGHORN RIVER NEAR HARDIN, MONT.--Continued

EXTREMES.--Continued

Period of record:
Water temperatures: Maximum (1962-64, 1967-72), 26.0°C Aug. 10, 1963, July 21, 22, 1964; minimum, freezing point on many days during winter periods most years.

REMARKS.--Temperature recorder at Two Leggins Canal diversion dam 9.5 miles upstream from sampling site. Records furnished by Montana Fish and Game Department. Records of discharge are estimated from Bighorn River near St. Xavier, Mont. (station 06287000). Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
05...	260	--	.48	.12	--	--	--	--	.25	2.6
NOV.										
10...	240	--	.37	.59	--	--	--	--	.060	1.3
DEC.										
08...	250	--	.28	.09	--	--	--	--	.030	1.5
JAN.										
06...	230	--	.34	.05	--	--	--	--	.040	1.4
FEB.										
02...	280	--	.29	.04	--	--	--	--	.070	1.4
MAR.										
08...	270	--	.32	.08	--	--	--	--	.19	2.5
APR.										
12...	290	--	.26	.06	--	--	--	--	.050	1.1
MAY										
17...	290	--	.13	.05	--	--	--	--	.060	1.9
JUNE										
12...	270	--	.02	.07	--	--	--	--	.090	1.5
JULY										
20...	240	1.7	--	--	--	--	--	--	--	1.3
AUG.										
21...	212	1.5	.30	--	.90	.60	.010	--	.090	2.0
SEP.										
15...	200	1.6	--	--	--	--	--	--	--	1.2

06288500 BIGHORN RIVER NEAR HARDIN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	11.5	10.5	9.5	5.0	4.5	4.0	3.5	0.0	0.0	1.0	0.5
2	11.5	11.0	9.5	9.0	4.5	4.5	3.5	2.0	0.0	0.0	1.5	1.0
3	13.5	11.5	10.0	9.0	4.5	4.5	2.0	1.0	0.5	0.0	1.5	1.0
4	15.0	12.0	10.5	9.0	5.0	4.5	1.5	1.0	1.0	0.5	2.0	0.5
5	15.5	13.5	9.0	8.0	4.5	4.5	2.0	1.5	0.5	0.5	3.0	1.0
6	15.5	13.5	9.0	8.0	4.5	3.5	3.0	2.0	1.0	0.5	3.5	1.5
7	15.0	13.0	9.0	7.0	3.5	2.0	3.5	3.0	2.0	1.0	2.0	1.5
8	14.5	13.0	10.0	8.5	3.5	2.0	3.0	3.0	2.0	1.5	3.5	1.5
9	15.0	12.0	9.5	8.5	5.0	3.5	3.5	3.0	2.0	0.5	4.0	1.5
10	15.0	13.0	10.0	9.0	5.0	4.5	3.0	2.0	1.0	0.5	4.5	2.0
11	15.0	13.0	10.0	9.0	4.5	4.0	3.0	2.0	1.5	0.5	4.0	3.0
12	14.0	13.0	10.0	9.0	4.0	3.5	2.0	0.0	3.0	1.5	5.5	3.0
13	13.5	13.0	9.0	8.5	4.0	4.0	0.0	0.0	2.0	1.5	6.0	4.0
14	13.0	11.5	8.5	8.5	4.5	3.5	0.5	0.0	2.0	1.0	6.0	4.5
15	11.5	10.5	8.5	8.0	4.5	3.0	2.0	0.5	1.5	1.0	6.0	4.0
16	11.5	10.5	8.0	6.5	4.0	3.0	3.0	2.0	3.0	1.5	7.0	4.0
17	11.5	11.5	7.0	6.5	5.0	4.0	3.5	1.5	2.0	1.5	6.5	4.0
18	11.0	10.0	6.5	6.0	5.0	5.0	1.5	0.5	3.0	1.5	6.0	3.5
19	11.5	10.0	6.5	6.0	5.0	5.0	1.0	0.5	2.0	1.5	5.5	4.0
20	13.0	11.0	9.0	6.5	5.0	4.5	0.5	0.0	2.0	1.5	5.5	3.0
21	13.0	11.5	8.0	6.5	4.5	4.0	3.0	0.5	1.5	1.5	5.5	3.0
22	13.0	11.0	6.5	6.0	4.5	4.0	2.0	2.0	1.5	0.5	5.5	3.0
23	13.0	11.5	6.0	5.5	4.5	3.5	2.0	0.5	1.0	0.5	4.0	3.5
24	12.0	11.5	6.5	5.5	3.5	3.5	0.5	0.0	1.0	0.5	5.0	3.0
25	13.0	11.5	6.0	6.0	3.5	1.5	0.0	0.0	2.0	0.5	4.0	3.0
26	12.0	10.5	6.0	5.5	1.5	1.0	0.0	0.0	1.5	0.5	4.0	2.0
27	10.5	9.5	5.5	5.5	3.0	1.5	0.0	0.0	3.0	1.5	3.0	2.0
28	9.5	9.5	5.5	5.5	3.0	2.0	0.5	0.0	4.0	1.5	3.5	2.0
29	10.0	9.0	5.5	5.5	3.5	3.0	0.5	0.0	1.5	0.5	3.5	2.0
30	10.0	9.5	5.5	5.0	3.5	3.5	1.0	0.0	---	---	3.5	2.0
31	10.5	9.5	---	---	3.5	3.5	1.0	0.0	---	---	5.0	3.0
MONTH	15.5	9.0	10.5	5.0	5.0	1.0	4.0	0.0	4.0	0.0	7.0	0.5

06288500 BIGHORN RIVER NEAR HARDIN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	2.0	5.5	4.0	---	---	15.5	12.0	19.0	15.5	17.0	14.5
2	3.0	2.0	7.0	4.5	---	---	14.5	12.0	18.0	15.5	17.0	15.5
3	4.5	2.0	8.0	5.0	---	---	14.5	12.0	18.5	15.5	17.0	15.0
4	5.0	2.0	7.0	5.0	---	---	16.5	12.0	20.0	15.5	18.5	15.0
5	5.5	3.0	6.0	5.0	---	---	17.0	14.5	19.5	17.0	18.0	15.5
6	5.0	3.5	5.0	4.5	12.0	8.0	15.0	14.0	20.0	16.0	16.5	15.0
7	6.0	3.5	5.0	5.0	13.0	9.0	17.0	14.0	20.0	17.0	18.0	15.0
8	5.5	3.5	5.5	4.5	11.5	9.5	18.0	14.0	19.5	16.5	18.5	15.5
9	5.0	3.5	8.0	5.5	10.5	9.0	18.0	14.5	20.0	16.5	18.0	16.0
10	5.0	3.5	7.0	5.5	13.0	9.0	18.0	15.0	20.5	17.0	16.0	14.5
11	5.0	3.5	7.0	5.0	13.5	9.5	16.5	14.5	20.0	16.5	17.0	14.5
12	5.5	3.5	7.0	5.5	13.0	9.0	18.0	14.5	19.0	17.0	18.0	15.5
13	4.0	3.5	9.5	5.5	12.0	8.5	17.0	15.0	20.0	17.0	18.0	15.5
14	6.0	3.5	9.5	6.0	12.0	9.0	16.5	14.5	20.5	17.0	17.0	15.0
15	6.0	3.5	10.0	6.5	11.0	9.5	18.0	14.5	20.5	17.0	17.0	15.0
16	6.5	4.0	9.5	6.5	13.5	9.5	17.0	14.5	20.5	18.0	17.0	15.0
17	9.0	3.5	9.0	6.5	13.0	10.5	18.0	14.5	21.0	17.0	18.0	15.5
18	3.5	3.0	9.5	6.5	11.5	10.0	18.0	15.0	19.0	17.0	17.0	15.5
19	4.5	3.0	7.0	6.0	11.5	10.0	15.0	14.0	18.5	16.5	16.5	14.5
20	6.0	3.5	10.0	6.0	13.5	9.5	14.0	13.5	18.5	16.0	15.0	14.0
21	6.0	4.0	10.5	7.0	13.5	10.5	17.0	14.0	19.5	16.5	16.5	13.5
22	5.5	3.5	9.5	7.0	14.5	11.0	18.5	15.0	20.0	16.5	16.0	13.0
23	6.0	3.5	9.5	6.5	13.5	11.5	19.5	15.0	19.0	16.0	15.0	14.0
24	6.5	4.0	10.0	7.0	14.0	11.0	19.5	15.5	19.5	15.5	15.0	12.0
25	9.0	4.0	7.0	6.5	14.0	11.0	19.0	16.0	19.5	15.5	13.5	11.0
26	5.5	4.0	10.5	6.0	13.5	11.0	19.5	16.0	19.5	16.0	15.5	12.0
27	7.0	4.0	10.0	8.0	14.0	10.5	19.5	16.0	19.5	16.0	15.0	13.0
28	8.0	4.5	12.0	9.5	15.5	11.0	20.0	15.5	20.0	16.0	14.0	13.0
29	7.0	4.5	13.0	10.5	16.0	12.0	20.5	16.5	19.5	16.0	15.0	13.0
30	5.0	4.5	14.0	11.0	16.0	13.0	19.5	16.5	18.5	16.5	16.0	13.5
31	---	---	14.5	11.0	---	---	18.0	16.0	16.5	15.0	---	---
MONTH	9.0	2.0	14.5	4.0	16.0	8.0	20.5	12.0	21.0	15.0	18.5	11.0
YEAR	21.0	0.0										

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.

LOCATION.--Lat 45°10'38", long 107°23'36", in W½SW¼ sec.35, T.7 S., R.35 E., Big Horn County, at gaging station 3.5 miles north of Wyola and 6 miles downstream from Pass Creek.

DRAINAGE AREA.--428 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1972.
Water temperatures: October 1969 to September 1972.
Sediment records: October 1969 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 458 mg/l Mar. 13-31; minimum, 193 mg/l June 1-15.
Hardness: Maximum, 320 mg/l Mar. 13-31; minimum, 170 mg/l June 1-15.
Specific conductance: Maximum daily, 760 micromhos Mar. 24; minimum daily, 322 micromhos June 8.
Water temperatures: Maximum, 22.5°C Aug. 13-16; minimum, freezing point on many days during October to March.
Sediment concentrations: Maximum daily, 1,910 mg/l Feb. 28; minimum daily, 22 mg/l Nov. 19.
Sediment discharge: Maximum daily, 6,030 tons Feb. 28; minimum daily, 7.1 tons Jan. 29.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	161	--	7.7	0	65	27	23	1.5	251	0	120
NOV.												
01-30	--	148	--	6.8	0	60	28	21	1.6	234	0	130
DEC.												
01-31	--	114	--	7.7	10	51	29	21	1.0	206	0	130
JAN.												
01-31	--	102	--	8.4	10	55	27	21	1.6	213	0	130
FEB.												
01-19	--	123	--	8.1	10	58	26	23	1.9	212	0	130
20-29	--	439	--	8.2	120	54	20	29	4.4	194	0	130
MAR.												
01-12	--	338	--	8.7	10	64	28	40	3.2	230	0	170
13-31	--	246	--	8.0	10	74	32	36	2.2	269	0	170
APR.												
01-30	--	186	--	5.8	20	60	31	31	1.5	230	0	160
MAY												
01-17	--	260	--	7.9	20	65	27	26	1.4	246	0	120
18-31	--	626	--	6.9	20	52	17	8.3	1.0	208	0	46
JUNE												
01-15	--	896	--	5.8	20	46	13	5.3	.9	181	0	32
16-30	--	426	--	6.2	20	50	17	9.4	1.1	196	0	51
JULY												
01-31	--	223	--	6.6	10	56	22	16	1.2	229	0	89
AUG.												
01-31	--	151	--	6.9	10	58	25	17	1.2	241	0	94
SEP.												
01-30	--	131	--	6.2	10	62	24	17	1.6	244	0	94
WTD. AVG.	--	--	--	7.0	19	56	23	19	1.6	219	0	98
TIME WTD. AVG.	--	234	--	7.2	14	58	25	21	1.6	227	0	115
TONS PER DAY	--	--	--	4.4	0	36	14	12	1.0	139	0	62
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
02...	1200	92	.0	6.7	0	76	30	22	1.4	264	0	130
MAR.												
01...	1630	398	1.0	8.4	20	59	25	33	3.9	221	0	150
JUNE												
01...	1615	860	14.5	5.2	30	47	14	5.8	.8	184	0	36
SEP.												
05...	1600	135	16.0	5.8	10	61	26	17	1.2	235	0	91

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 473 mg/l Mar. 20-31, 1970; minimum, 193 mg/l June 1-15, 1972.
Hardness: Maximum, 320 mg/l Mar. 13-31, 1972; minimum, 170 mg/l Feb. 11-15, June 1-24, June 25-30, 1971, June 1-15, 1972.
Specific conductance: Maximum daily, 792 micromhos Apr. 6, 1971; minimum daily, 322 micromhos June 8, 1972.
Water temperatures: Maximum, 22.5°C on several days during 1970-72; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 3,510 mg/l Apr. 25, 1971; minimum daily, 17 mg/l Oct. 30, Nov. 3, 1970.
Sediment discharge: Maximum daily, 9,110 tons Apr. 25, 1971; minimum daily, 6.5 tons Jan. 16, 1970.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Flow affected by ice during most of winter months. Flow regulated by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	1.3	.1	.01	--	369	.50	160	270	68	.6	595	8.1
NOV.												
01-30	1.2	.3	.00	--	364	.50	145	260	73	.6	582	8.2
DEC.												
01-31	2.0	.1	.16	--	344	.47	106	250	78	.6	537	8.2
JAN.												
01-31	1.3	.1	.16	--	350	.48	96.4	250	74	.6	549	8.0
FEB.												
01-19	1.6	.2	.20	.000	354	.48	118	250	78	.6	559	8.1
20-29	2.2	.2	.24	.030	345	.47	409	220	58	.9	531	8.2
MAR.												
01-12	2.3	.5	.11	.000	430	.58	392	270	86	1.1	670	8.3
13-31	2.7	.2	.04	.020	458	.62	304	320	96	.9	709	8.0
APR.												
01-30	1.4	.2	.00	.010	404	.55	203	280	89	.8	635	7.9
MAY												
01-17	1.4	.3	.03	.000	370	.50	260	270	72	.7	596	8.1
18-31	.9	.3	.19	.000	236	.32	398	200	29	.3	402	8.0
JUNE												
01-15	1.0	.2	.01	.000	193	.26	467	170	20	.2	337	7.6
16-30	1.0	.2	.00	.000	232	.32	267	190	34	.3	419	7.3
JULY												
01-31	1.1	.2	.02	.000	305	.41	184	230	43	.5	496	8.1
AUG.												
01-31	1.8	.2	.00	.000	323	.44	132	250	50	.5	527	7.6
SEP.												
01-30	1.4	.3	.00	.000	327	.44	116	250	53	.5	536	8.0
WTD. AVG.	1.4	.2	.06	--	314	.43	--	234	55	.5	511	7.9
TIME WTD. AVG.	1.5	.2	.06	--	342	.47	--	250	64	.6	549	8.0
TONS PER DAY	.9	.1	.04	--	199	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
02...	1.0	.1	.14	--	398	.54	98.9	310	97	.5	639	7.9
MAR.												
01...	2.3	.2	.42	--	393	.53	422	250	69	.9	596	7.9
JUNE												
01...	.3	.2	.33	.000	201	.27	467	170	24	.2	348	7.8
SEP.												
05...	1.2	.3	.04	.000	319	.43	116	260	67	.5	529	8.2

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	584	599	585	598	626	602	732	684	331	438	541	537
2	620	604	620	553	678	651	732	690	331	470	600	521
3	621	585	620	560	661	727	730	658	336	445	534	521
4	585	604	616	573	630	745	732	643	328	455	488	521
5	584	611	606	581	622	747	716	703	325	452	545	521
6	578	622	600	605	626	745	711	650	325	463	545	521
7	584	638	558	587	618	587	668	646	326	450	539	521
8	549	622	638	587	613	655	682	677	322	460	539	521
9	575	634	668	564	613	718	668	658	330	462	534	521
10	572	599	610	583	633	685	649	625	353	467	543	521
11	574	624	613	592	645	655	665	622	341	475	536	521
12	584	606	624	573	633	655	645	609	349	485	545	521
13	573	610	614	609	633	700	632	619	357	485	540	521
14	560	610	600	656	630	700	667	568	371	487	545	521
15	552	598	588	695	622	708	655	565	372	492	540	521
16	583	598	599	633	630	710	652	524	390	510	540	528
17	590	598	600	548	631	710	626	472	388	504	535	528
18	574	598	588	553	633	727	641	433	398	508	535	528
19	633	592	586	605	633	725	670	422	422	520	521	528
20	638	635	589	604	620	710	714	443	407	527	545	528
21	624	598	601	580	582	706	694	411	430	535	540	528
22	615	592	600	592	582	710	674	393	428	527	530	528
23	620	592	597	598	608	710	680	397	425	532	526	537
24	619	592	606	593	640	760	668	410	425	527	526	537
25	597	604	610	637	647	743	667	403	430	532	535	537
26	606	587	656	695	685	729	649	426	426	537	535	537
27	584	610	668	712	695	710	645	403	426	536	535	537
28	521	578	659	665	398	710	638	410	425	529	535	537
29	619	598	634	756	399	706	632	429	436	527	521	537
30	642	588	627	694	---	710	636	382	422	537	521	547
31	623	---	653	655	---	710	---	360	---	537	521	---
MONTH	593	604	614	614	616	702	672	527	379	497	536	528
YEAR	574											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
07...	1230	157	.030	--	--
NOV.					
04...	1330	188	.080	--	--
DEC.					
02...	1200	92	.040	80	20
JAN.					
13...	1330	89	.090	--	--
FEB.					
09...	1445	123	.030	--	--
MAR.					
01...	1630	398	.010	90	10
APR.					
05...	1200	185	.040	--	--
MAY					
03...	1230	215	.010	--	--
JUNE					
01...	1615	860	.020	100	0
JULY					
10...	1600	230	.010	--	--
AUG.					
09...	1145	150	.010	--	--
SEP.					
05...	1600	135	.030	80	20

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.0	2.5	1.0	0.0	0.0	0.0	7.5	8.5	12.0	15.0	18.0	15.0
2	5.0	3.5	0.0	0.0	0.0	1.0	5.0	7.0	14.5	14.0	17.5	13.5
3	9.5	4.0	0.0	0.0	0.0	2.0	5.0	12.0	11.5	12.5	15.5	13.5
4	10.5	5.0	0.0	0.0	0.0	1.5	5.0	12.0	11.5	10.5	17.5	12.5
5	12.0	2.0	0.0	0.0	0.0	3.0	10.5	11.0	13.5	18.0	19.0	16.0
6	14.0	0.0	0.0	0.0	0.0	6.0	9.0	7.5	12.5	14.5	17.5	15.5
7	11.5	0.0	0.0	0.0	1.0	1.0	11.0	7.0	16.0	18.5	20.0	15.0
8	10.0	4.0	0.0	0.0	1.0	3.0	8.5	7.5	14.5	16.5	18.5	17.0
9	13.5	3.5	1.0	0.0	0.0	4.0	7.5	8.5	14.0	17.0	22.0	15.0
10	12.5	5.0	0.5	0.0	0.0	6.0	9.5	9.5	12.5	20.0	20.0	13.5
11	12.5	5.0	0.0	0.0	1.5	6.0	9.5	8.5	13.0	15.5	21.5	15.0
12	10.5	7.5	0.0	0.0	1.0	3.5	11.5	9.5	15.0	20.5	20.0	14.0
13	10.0	5.5	0.0	0.0	0.5	7.5	7.5	10.0	13.0	20.0	22.5	15.5
14	8.0	4.0	0.0	0.0	0.5	7.0	9.0	16.0	14.0	17.0	22.0	13.0
15	6.5	5.0	0.0	0.0	1.0	9.0	9.0	15.5	14.0	15.5	20.5	17.0
16	5.0	3.5	0.0	0.0	2.0	7.0	10.0	13.5	19.0	15.5	22.5	14.0
17	5.5	3.5	0.0	0.0	0.5	9.5	8.0	13.5	15.0	19.5	20.5	16.0
18	4.0	2.0	0.0	0.0	2.0	9.5	5.5	13.0	14.0	16.5	21.0	15.0
19	4.5	5.0	0.0	0.0	1.5	8.0	5.5	10.0	13.0	13.0	18.5	15.0
20	7.5	6.0	0.0	0.0	2.5	10.5	7.0	10.0	10.5	11.0	15.0	12.5
21	6.5	6.0	0.0	0.0	3.0	7.5	11.5	15.5	15.0	13.0	19.0	10.5
22	5.0	5.0	0.0	0.0	2.5	11.0	8.0	12.0	13.5	14.5	17.5	12.0
23	5.0	2.5	0.0	0.0	0.5	8.5	9.5	10.5	18.5	20.5	18.0	11.5
24	5.5	3.5	0.0	0.0	0.0	7.0	11.0	12.0	14.5	21.0	15.0	10.0
25	9.0	4.0	0.0	0.0	1.5	7.0	9.5	9.0	13.5	18.0	18.5	7.0
26	12.5	3.0	0.0	0.0	0.0	6.0	10.0	11.0	15.5	20.0	16.0	5.5
27	4.5	1.5	0.0	0.0	4.5	3.0	9.0	9.5	13.5	19.0	15.0	9.0
28	0.0	0.0	0.0	0.0	4.5	2.5	12.5	13.0	15.5	19.0	19.0	7.5
29	0.0	1.5	0.0	0.0	0.5	3.0	13.0	13.0	15.5	18.5	17.0	9.0
30	0.0	1.5	0.0	0.0	---	2.0	8.5	11.0	21.0	20.5	19.0	9.0
31	0.0	---	0.0	0.0	---	6.5	---	14.5	---	19.5	15.0	---
MONTH	7.5	3.5	0.0	0.0	1.0	5.5	9.0	11.0	14.5	17.0	18.5	13.0
YEAR	8.5											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
MAR. 01...	1745	1.0	386	260	271	46	61	89	97	100	--
JUNE 01...	1650	4.5	845	356	812	--	--	87	94	99	100

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	162	59	26	156	131	55	120	33	11
2	234	469	296	157	110	47	105	42	12
3	180	511	248	152	94	39	110	47	14
4	162	152	66	192	346	179	120	42	14
5	157	93	39	190	225	115	130	39	14
6	155	94	39	152	118	48	130	52	18
7	150	66	27	150	96	39	130	43	15
8	151	51	21	161	80	35	110	39	12
9	149	54	22	155	77	32	120	47	15
10	146	55	22	155	73	31	125	39	13
11	144	62	24	154	74	31	120	31	10
12	143	67	26	151	60	24	115	37	11
13	142	63	24	149	49	20	115	46	14
14	145	67	26	146	49	19	110	30	8.9
15	151	58	24	145	36	14	110	48	14
16	153	72	30	147	38	15	115	33	10
17	150	68	28	143	42	16	120	58	19
18	216	214	147	138	35	13	120	3[illegible]	13
19	208	401	225	136	22	8.1	110	59	18
20	190	389	200	147	87	35	115	87	27
21	181	358	175	141	49	19	120	62	20
22	167	140	63	141	34	13	120	77	25
23	160	106	46	138	27	10	120	107	35
24	159	87	37	135	23	8.4	110	121	36
25	157	75	32	144	29	11	90	98	24
26	154	66	27	141	25	9.5	80	62	13
27	142	57	25	140	33	12	90	61	15
28	147	52	21	136	28	10	100	42	11
29	137	70	26	130	33	12	105	58	16
30	141	94	36	125	31	10	115	44	14
31	152	96	39	--	--	--	120	37	12
TOTAL	5005	--	2087	4447	--	930.0	3520	--	503.9

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	110	38	11	110	99	29	407	517	568
2	105	43	12	90	62	15	305	135	111
3	100	37	10	100	65	18	267	135	97
4	80	45	9.7	110	80	24	225	117	71
5	110	99	29	115	78	24	212	99	57
6	120	51	17	125	83	28	398	805	1220
7	130	52	18	130	77	27	503	779	1160
8	130	41	14	125	74	25	317	333	285
9	130	37	13	125	132	45	316	369	315
10	125	36	12	115	87	27	366	531	525
11	110	35	10	120	104	34	373	486	489
12	100	42	11	125	73	25	363	504	494
13	90	48	12	130	95	33	327	459	405
14	95	39	10	130	108	38	313	378	319
15	100	48	13	130	111	39	286	252	195
16	110	75	22	130	145	51	272	238	175
17	120	128	41	135	224	82	273	239	176
18	120	156	51	140	159	60	256	200	138
19	110	69	20	150	176	71	248	175	117
20	105	97	27	400	329	355	244	158	104
21	105	78	22	326	254	224	235	138	88
22	110	77	23	286	128	99	226	116	71
23	100	54	15	264	135	96	228	122	75
24	90	189	46	243	36	24	269	209	152
25	80	150	32	242	87	57	238	144	93
26	70	172	33	183	62	31	227	95	58
27	50	93	13	209	102	58	215	79	46
28	65	48	8.4	1170	1910	6030	207	73	41
29	85	31	7.1	1070	949	2740	200	64	35
30	100	35	9.5	--	--	--	202	70	38
31	110	53	16	--	--	--	207	64	36
TOTAL	3165	--	587.7	6728	--	10409	8725	--	7754

06290500 LITTLE BIGHORN RIVER BELOW PASS CREEK, NEAR WYOLA, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	210	199	113	233	194	122	851	480	1100
2	210	150	85	218	141	83	989	562	1500
3	200	97	52	212	115	66	1100	630	1870
4	196	89	47	208	94	53	1130	552	1680
5	187	44	22	252	323	220	1080	440	1200
6	180	51	25	245	237	157	994	339	963
7	179	34	16	242	143	93	981	316	846
8	174	41	19	256	170	118	981	321	850
9	174	46	22	251	143	97	983	293	778
10	174	34	16	253	120	82	890	219	503
11	174	48	23	253	97	66	812	229	502
12	174	47	22	255	86	59	760	176	365
13	180	45	22	257	103	71	694	139	260
14	185	48	24	255	102	70	632	125	213
15	177	44	21	285	156	120	583	125	197
16	174	53	25	337	295	268	540	110	160
17	176	49	23	410	414	458	505	102	139
18	186	47	24	509	516	709	480	98	127
19	194	68	36	611	527	869	545	171	252
20	196	257	136	593	364	583	500	99	136
21	192	277	144	688	443	823	452	92	112
22	194	94	49	799	482	1040	431	79	92
23	196	106	56	712	267	513	411	69	77
24	183	74	37	657	187	332	409	78	86
25	182	65	32	637	183	315	392	69	73
26	186	46	23	598	155	250	386	58	60
27	177	47	22	566	135	206	363	57	56
28	174	47	22	526	113	160	342	48	44
29	177	64	31	549	123	182	320	55	48
30	209	82	46	608	155	254	306	45	37
31	--	--	--	707	245	468	--	--	--
TOTAL	5570	--	1235	13182	--	8907	19828	--	14406

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	306	92	76	170	72	33	143	59	23
2	360	260	253	174	77	36	136	61	22
3	336	111	101	201	89	48	139	63	24
4	327	71	63	181	71	35	136	58	21
5	302	48	39	167	63	28	132	53	19
6	283	71	54	149	59	24	136	52	19
7	277	46	34	145	61	24	140	62	23
8	255	77	53	151	61	25	133	65	23
9	243	64	42	148	60	24	130	72	25
10	234	62	39	141	65	25	131	76	27
11	222	64	38	137	70	26	133	69	25
12	216	57	33	138	67	25	131	67	24
13	207	72	40	139	55	21	145	79	31
14	203	67	37	139	50	19	133	79	28
15	201	73	40	157	73	31	128	53	18
16	184	93	46	156	112	47	124	54	18
17	189	67	34	156	107	45	120	34	11
18	180	70	34	150	65	26	123	46	15
19	182	72	35	164	86	38	121	49	16
20	191	66	34	154	68	28	119	41	13
21	226	97	59	151	42	17	119	38	12
22	203	77	42	145	47	18	120	35	11
23	187	45	23	143	42	16	125	39	13
24	183	39	19	160	43	19	125	36	12
25	187	71	36	143	48	19	134	39	14
26	184	83	41	139	54	20	135	57	21
27	176	73	35	136	48	18	140	73	28
28	181	68	33	134	49	18	138	48	18
29	167	72	32	130	54	19	136	34	12
30	162	69	30	130	57	20	136	66	24
31	164	67	30	140	59	22	--	--	--
TOTAL	6918	--	1505	4668	--	814	3943	--	590

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 85699
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 49728.6

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.

LOCATION.--Lat 45°44'08", long 107°33'27", in NE¼NE¼ sec.19, T.1 S., R.34 E., Big Horn County, at gaging station at bridge on Sarpy Road, 0.2 mile upstream from terminal wasteway of Agency Canal, 0.6 mile upstream from mouth, and 2.3 miles east of Hardin.

DRAINAGE AREA.--1,294 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1969 to September 1972.
Water temperatures: October 1969 to September 1972.
Sediment records: October 1969 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 642 mg/l Mar. 16-31; minimum, 251 mg/l June 1-20.
Hardness: Maximum, 340 mg/l Mar. 16-31; minimum, 200 mg/l June 1-20.
Specific conductance: Maximum daily, 1,190 micromhos Apr. 24; minimum daily, 382 micromhos June 6.
Water temperatures: Maximum, 27.5°C July 29, Aug. 17; minimum, freezing point on many days during November to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-11	--	240	--	7.6	0	58	34	45	2.7	240	0	190
17-31	--	250	--	8.3	0	58	37	51	2.5	243	0	210
NOV.												
01-30	--	220	--	6.7	0	60	38	50	2.5	257	0	200
DEC.												
01-04	--	145	--	6.6	20	54	42	57	2.3	247	0	230
09-30	--	101	--	8.3	10	54	41	49	2.2	245	0	210
JAN.												
01-31	--	124	--	10	10	58	38	53	2.7	253	0	210
FEB.												
01-18	--	176	--	9.4	10	71	36	47	2.8	265	0	200
19-29	--	791	--	8.1	20	56	24	47	5.2	191	0	180
MAR.												
01-15	--	1480	--	8.3	20	54	27	55	4.9	202	0	200
16-31	--	531	--	9.2	10	63	45	83	3.7	266	0	300
APR.												
01-30	--	324	--	6.0	10	48	46	85	2.9	216	0	300
MAY												
01-16	--	349	--	6.1	10	60	43	79	2.6	255	0	260
17-31	--	705	--	8.5	10	58	25	28	1.8	238	0	110
JUNE												
01-20	--	960	--	7.2	10	50	18	13	1.4	207	0	58
21-30	--	498	--	6.7	10	58	22	22	1.7	231	0	90
JULY												
01-31	--	226	--	6.1	70	53	30	39	2.3	226	0	150
AUG.												
01-31	--	182	--	5.9	10	55	31	42	2.5	233	0	170
SEP.												
01-30	--	171	--	5.3	20	58	32	36	2.5	235	0	160
WTD. AVG.	--	--	--	7.5	15	56	31	47	3.0	226	0	178
TIME WTD. AVG.	--	365	--	7.3	15	57	34	49	2.7	237	0	192
TONS PER DAY	--	--	--	7.4	0	55	30	46	2.9	223	0	175
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
03...	1300	124	1.5	6.4	10	81	41	58	2.3	298	0	220
MAR.												
08...	1230	1900	3.0	7.2	60	48	25	53	4.7	180	0	180
JUNE												
03...	1530	1170	20.5	6.1	30	48	19	13	1.5	212	0	61
SEP.												
05...	1140	148	19.0	5.3	200	57	32	38	2.1	229	0	160

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.--Continued

EXTREMES, 1971-72.--Continued
Sediment concentrations: Maximum daily, 6,460 mg/l Mar. 9; minimum daily, 20 mg/l Nov. 28.
Sediment discharge: Maximum daily, 41,100 tons Mar. 9; minimum daily, 7.8 tons Jan. 30.

Period of record:
Dissolved solids: Maximum, 749 mg/l Apr. 1-6, 1970; minimum, 251 mg/l June 1-20, 1972.
Hardness: Maximum, 390 mg/l Apr. 1-12, 1971; minimum, 190 mg/l Feb. 1-19, 1971.
Specific conductance: Maximum daily, 1,190 micromhos Apr. 24, 1972; minimum daily, 382 micromhos June 6, 1972.
Water temperatures: Maximum observed, 30.0°C Aug. 9, 12, 1971; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 6,460 mg/l Mar. 9, 1972; minimum daily, 10 mg/l Oct. 12, 1969.
Sediment discharge: Maximum daily, 41,100 tons Mar. 9, 1972; minimum daily, 4 tons Oct. 2, 1969.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Maximum observed during water year: Hardness, 370 mg/l Dec. 3. Stream frozen Dec. 7 to Mar. 9. Flow affected by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-11	2.8	.2	.00	--	458	.62	297	280	88	1.2	714	8.2
17-31	3.2	.2	.01	--	490	.67	331	300	98	1.3	749	8.2
NOV.												
01-30	3.1	.3	.00	--	487	.66	289	310	95	1.2	756	8.1
DEC.												
01-04	3.9	.2	.00	--	517	.70	202	310	110	1.4	792	8.3
09-30	3.6	.2	.12	--	489	.67	133	300	100	1.2	755	8.2
JAN.												
01-31	3.2	.1	.25	--	501	.68	168	300	94	1.3	768	8.1
FEB.												
01-18	3.6	.2	.26	.010	502	.68	239	330	110	1.1	772	8.2
19-29	4.3	.2	.27	.020	420	.57	897	240	82	1.3	631	8.1
MAR.												
01-15	4.1	.4	.27	.000	454	.62	1810	250	80	1.5	696	8.0
16-31	5.9	.6	.10	.000	642	.87	920	340	120	2.0	962	8.2
APR.												
01-30	4.8	.3	.01	.000	599	.81	524	310	130	2.1	901	8.0
MAY												
01-16	4.0	.2	.01	.000	580	.79	547	330	120	1.9	893	8.2
17-31	1.9	.1	.16	.000	351	.48	668	250	53	.8	571	8.0
JUNE												
01-20	1.0	.1	.03	.000	251	.34	651	200	29	.4	429	7.5
21-30	1.0	.2	.00	.000	315	.43	424	240	46	.6	529	7.7
JULY												
01-31	2.3	.2	.01	.000	394	.54	240	260	70	1.1	627	8.1
AUG.												
01-31	2.7	.2	.00	.000	424	.58	208	260	74	1.1	679	7.9
SEP.												
01-30	3.2	.3	.00	.000	413	.56	191	280	84	.9	668	8.0
WTD. AVG.	3.2	.3	.11	--	437	.59	--	267	80	1.2	682	8.0
TIME WTD. AVG.	3.2	.2	.08	--	462	.63	--	284	88	1.2	720	8.0
TONS PER DAY	3.1	.2	.10	--	431	--	--	--	--	--	--	--
ANALYSES OF ADDITIONAL SAMPLES												
DEC.												
03...	4.4	.2	.15	--	561	.76	188	370	130	1.3	856	8.0
MAR.												
08...	3.2	.1	.24	--	411	.56	2110	220	75	1.5	637	7.6
JUNE												
03...	1.9	.1	.23	.000	256	.35	809	200	24	.4	434	7.4
SEP.												
05...	3.2	.2	.00	.000	411	.56	164	270	86	1.0	656	8.1

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	753	787	860	875	968	527	984	943	498	544	699	660
2	746	776	817	875	956	493	984	901	457	569	722	640
3	716	793	815	843	956	497	1040	946	433	502	717	640
4	740	793	860	---	899	627	1010	1010	421	504	689	640
5	755	787	---	798	841	754	962	1010	392	607	689	640
6	719	776	---	841	838	768	962	928	382	598	663	640
7	719	778	---	804	814	670	962	---	396	604	662	640
8	---	776	---	754	811	641	1010	918	396	604	662	640
9	719	776	839	790	792	618	993	916	395	618	670	640
10	716	778	939	800	794	725	977	916	398	628	670	640
11	755	778	920	800	794	839	977	940	417	656	670	640
12	---	793	879	800	794	810	984	910	435	659	678	640
13	---	780	837	810	809	839	913	876	427	678	692	640
14	---	787	908	800	809	864	962	858	429	644	664	640
15	---	817	879	804	794	871	971	834	436	628	664	640
16	---	808	842	951	792	925	921	829	442	644	709	640
17	770	799	837	951	818	946	981	786	445	644	674	640
18	791	774	---	772	753	968	947	723	461	659	657	660
19	791	780	803	798	653	977	947	668	472	644	648	660
20	778	---	780	886	584	1000	918	604	474	659	682	674
21	827	776	794	875	596	1030	904	573	504	678	644	674
22	---	772	817	953	630	1030	944	576	513	670	660	674
23	---	774	852	953	713	---	977	542	518	647	660	689
24	---	776	810	959	717	1060	1190	504	522	655	660	689
25	776	774	---	971	715	1100	1030	512	524	658	654	689
26	759	772	---	959	751	1140	1020	532	520	667	644	689
27	755	---	888	959	782	1100	993	531	521	678	644	689
28	765	---	894	956	647	1060	953	554	519	681	656	689
29	---	793	896	959	469	1070	947	553	528	670	656	689
30	774	793	888	959	---	1080	941	553	533	676	664	689
31	776	---	---	971	---	1100	---	532	---	690	664	---
MONTH	---	784	---	874	769	871	977	749	460	634	671	658
YEAR	752											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
05...	1030	250	.050	--	--
NOV.					
04...	1340	214	.050	--	--
DEC.					
03...	1300	124	.020	120	50
JAN.					
06...	1200	150	.020	--	--
FEB.					
02...	1330	137	.070	--	--
MAR.					
08...	1230	1900	.11	40	20
APR.					
20...	1245	320	.060	--	--
MAY					
17...	1100	352	.010	--	--
JUNE					
03...	1530	1170	.020	60	0
JULY					
06...	1200	287	.020	--	--
AUG.					
02...	1130	152	.080	--	--
SEP.					
05...	1140	148	.030	110	10

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	4.0	0.0	2.0	1.0	0.0	9.0	10.5	23.0	23.5	24.0	20.0
2	12.5	4.5	2.5	1.5	0.0	0.0	5.0	14.5	22.0	20.0	23.0	21.0
3	13.0	4.0	2.5	0.0	0.0	0.0	6.5	17.0	19.0	16.5	24.0	20.0
4	12.0	2.0	2.5	---	0.0	0.0	10.0	17.0	21.0	15.0	26.0	21.5
5	12.0	1.5	---	0.0	0.0	1.0	10.5	15.5	21.0	24.0	26.0	21.0
6	11.0	2.5	---	0.0	0.0	1.0	12.5	11.5	23.0	23.0	26.0	18.0
7	12.0	2.5	---	1.0	1.5	1.0	13.0	---	22.0	24.0	26.0	20.5
8	---	3.0	---	0.5	1.5	1.5	13.5	10.0	22.5	26.0	25.5	23.0
9	11.5	3.5	0.0	1.0	0.5	4.0	8.0	15.0	20.0	22.0	25.5	20.0
10	10.5	3.5	0.0	1.5	0.5	3.0	12.0	15.0	22.5	26.0	27.0	16.0
11	11.0	3.5	0.0	2.0	1.0	1.5	13.0	15.0	22.0	23.0	27.0	18.5
12	---	3.0	0.0	0.0	1.0	2.0	13.0	14.0	24.0	24.5	25.0	19.0
13	---	4.5	0.0	0.0	1.5	7.0	10.5	17.0	22.0	23.0	26.0	19.5
14	---	4.0	0.0	0.0	1.0	7.0	12.5	19.0	22.0	21.0	26.0	20.0
15	---	4.0	0.0	1.0	1.5	9.0	13.5	21.5	22.0	20.0	26.5	18.5
16	---	3.5	0.0	1.0	0.0	11.0	14.0	24.0	23.0	21.5	26.0	20.0
17	6.0	3.5	0.0	1.0	0.5	11.0	11.5	23.0	21.0	25.0	27.5	19.0
18	7.0	3.0	---	0.5	0.5	11.0	6.5	22.0	20.0	24.5	25.0	19.5
19	8.0	4.0	0.0	0.0	0.0	11.0	9.0	17.5	20.0	25.0	23.0	19.0
20	7.5	---	0.0	0.0	2.0	12.0	12.0	15.5	21.5	25.0	23.0	14.0
21	7.5	3.5	0.0	0.5	2.0	14.5	13.5	16.5	21.0	21.5	25.0	17.0
22	---	3.5	0.0	1.0	0.5	14.0	9.0	19.0	24.0	22.0	25.0	16.0
23	---	4.0	0.0	0.0	0.0	---	9.5	17.0	22.0	21.5	23.5	11.0
24	---	3.0	0.0	0.0	0.0	7.5	15.0	20.0	24.0	25.5	20.5	9.5
25	6.5	3.5	---	0.0	0.0	9.0	11.5	15.0	25.0	25.5	25.0	9.5
26	6.0	3.5	---	0.0	0.5	7.0	13.5	17.0	23.0	25.5	21.0	12.5
27	4.0	---	0.0	0.0	1.5	7.0	16.0	15.0	22.0	25.0	25.5	8.0
28	4.0	---	0.0	0.0	0.5	5.0	18.0	17.0	25.0	26.5	26.0	8.5
29	---	0.0	0.0	0.0	0.0	3.5	18.5	19.0	27.0	27.5	24.5	12.0
30	5.0	0.0	0.0	0.0	---	4.5	10.5	21.0	27.0	23.0	22.0	8.0
31	4.0	---	---	0.0	---	6.0	---	23.0	---	24.0	18.0	---
MONTH	---	3.0	---	0.5	0.5	5.5	11.5	17.0	22.5	23.0	24.5	16.5
YEAR	11.5											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. FALL DIAM. % FINER THAN 1.00 MM
MAR.												
08...	1310	2.0	1910	1610	8300	32	45	71	78	97	99	100
JUNE												
03...	1430	20.5	1170	1380	4360	31	49	89	96	100	--	--

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	212	175	100	205	105	58	176	73	35
2	267	302	218	229	112	69	140	81	31
3	320	232	200	233	120	75	113	97	30
4	292	252	199	226	125	76	149	100	40
5	253	280	191	243	67	44	151	100	41
6	230	113	70	269	65	47	187	108	55
7	216	79	46	205	65	36	110	97	29
8	209	76	43	195	60	32	90	94	23
9	205	80	44	254	55	38	60	85	14
10	201	84	46	254	153	102	50	96	13
11	201	85	46	240	224	145	50	115	16
12	195	86	45	237	112	72	70	86	16
13	195	86	45	233	91	57	90	89	22
14	191	93	48	226	272	166	110	90	27
15	201	138	75	222	348	209	130	97	34
16	213	243	140	219	337	199	140	108	41
17	220	344	204	219	284	168	150	96	39
18	261	384	271	215	80	46	140	94	36
19	311	248	208	205	26	14	130	90	32
20	333	222	200	195	35	18	100	77	21
21	298	220	177	212	39	22	80	76	16
22	293	214	169	215	38	22	100	69	19
23	269	220	160	209	32	18	120	89	29
24	247	217	145	198	41	22	110	127	38
25	233	214	135	191	44	23	100	121	33
26	233	169	106	201	28	15	90	120	29
27	229	166	103	205	21	12	90	104	25
28	233	164	103	205	20	11	100	96	26
29	240	101	65	191	22	11	110	134	40
30	201	89	48	195	21	11	120	142	46
31	198	91	49	--	--	--	120	155	50
TOTAL	7400	--	3699	6546	--	1838	3476	--	944

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	120	118	38	120	56	18	1520	258	1060
2	110	103	31	140	95	36	1460	828	3260
3	100	119	32	140	109	41	1410	361	1370
4	120	153	50	140	94	36	1360	317	1160
5	140	140	53	140	62	23	1310	387	1370
6	150	106	43	150	71	29	1420	1580	6060
7	160	120	52	150	85	34	1620	2190	9580
8	170	111	51	150	88	36	1910	1570	8100
9	170	96	44	140	72	27	2230	6460	41100
10	160	79	34	140	72	27	1620	3040	13500
11	160	76	33	130	84	29	1510	3360	13700
12	130	100	35	130	83	29	1460	2120	8360
13	110	95	28	140	84	32	1230	1880	6240
14	100	85	23	160	81	35	1130	1900	5800
15	100	90	24	180	89	43	1020	1760	4850
16	90	44	11	200	106	57	890	1400	3360
17	90	33	8.0	302	97	79	752	1050	2130
18	110	60	18	516	85	118	709	814	1560
19	130	58	20	673	390	709	605	714	1170
20	140	93	35	768	741	1540	522	596	840
21	140	81	31	722	712	1390	472	441	562
22	150	42	17	660	484	862	442	439	524
23	150	39	16	685	315	583	414	365	408
24	140	33	12	704	81	154	433	308	360
25	130	38	13	683	71	131	544	371	545
26	110	39	12	653	152	268	538	338	491
27	100	40	11	623	314	528	482	427	533
28	90	36	8.7	1010	2440	6650	422	374	426
29	90	35	8.5	1520	2420	9930	404	239	261
30	80	36	7.8	--	--	--	395	186	198
31	90	52	13	--	--	--	381	159	164
TOTAL	3830	--	813.0	11869	--	23474	30595	--	139042

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	386	171	178	314	97	82	732	489	993
2	395	170	181	382	152	157	913	782	1930
3	391	160	169	364	145	143	1120	1310	3960
4	377	205	209	330	180	160	1250	1540	5200
5	359	189	183	326	142	125	1290	1510	5260
6	350	200	189	356	149	143	1240	1320	4420
7	329	170	151	378	208	212	1140	1030	3170
8	313	128	108	364	278	275	1130	1080	3500
9	317	138	118	378	211	215	1130	788	2400
10	313	104	88	369	158	157	1150	769	2390
11	309	104	87	357	157	151	1040	644	1810
12	289	112	87	347	130	122	960	615	1590
13	293	100	79	347	120	112	921	527	1310
14	309	131	109	339	120	110	832	446	1000
15	329	102	91	328	111	98	817	403	889
16	301	108	88	332	121	108	771	402	837
17	301	100	81	377	153	156	715	359	693
18	301	85	69	455	235	289	663	281	503
19	317	91	78	566	529	808	657	259	459
20	317	103	88	710	842	1610	700	339	641
21	325	102	90	774	797	1670	658	414	734
22	341	110	101	833	771	1730	606	283	463
23	350	118	112	1010	1160	3160	549	193	286
24	395	206	197	953	880	2260	512	164	227
25	321	152	132	842	598	1360	508	169	232
26	301	111	90	779	421	885	486	143	188
27	298	104	84	736	360	715	469	140	177
28	278	100	75	684	327	604	436	115	135
29	270	99	72	620	282	472	484	97	106
30	282	91	69	602	292	475	353	113	108
31	--	--	--	637	315	542	--	--	--
TOTAL	9717	--	3453	16189	--	19104	24172	--	45413

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	295	108	86	170	72	33	170	71	33
2	289	102	80	170	72	33	182	101	50
3	334	121	109	175	75	35	186	75	38
4	343	125	116	202	83	45	175	60	28
5	331	146	130	230	94	58	173	54	25
6	300	119	96	211	86	49	173	53	25
7	274	109	81	190	75	37	178	52	25
8	249	99	72	170	63	29	182	43	21
9	234	102	64	161	74	32	180	41	20
10	193	96	50	162	75	33	174	42	20
11	171	88	41	159	69	30	168	33	15
12	168	86	39	153	73	30	171	30	14
13	167	94	42	151	81	33	170	32	15
14	183	88	43	146	76	30	181	34	17
15	189	88	45	157	84	34	184	34	17
16	193	85	44	190	177	91	171	28	13
17	187	73	37	203	127	70	165	24	11
18	166	80	36	188	117	59	157	26	11
19	179	84	41	187	106	54	156	33	14
20	187	75	38	190	116	60	154	28	12
21	219	95	56	227	213	131	152	24	9.8
22	251	111	75	209	147	83	152	26	11
23	265	106	76	193	115	60	152	34	14
24	243	89	58	178	87	42	155	34	14
25	223	80	48	190	82	42	157	25	11
26	206	73	41	203	81	44	160	23	9.9
27	197	72	38	189	76	39	173	25	12
28	196	76	40	183	77	38	177	32	15
29	187	70	35	176	77	37	195	54	28
30	179	65	31	157	71	30	198	88	47
31	174	71	33	165	67	30	--	--	--
TOTAL	6992	--	1821	5635	--	1453	5129	--	595.7

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 131550
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 241651.7

06294700 BIGHORN RIVER AT BIGHORN, MONT.
(Irrigation network station)

LOCATION.--Lat 46°08'50", long 107°28'00", in NE¼NE¼ sec.33, T.5 N., R.34 E., Treasure County, at gaging station at bridge on old U.S. Highway 10, 0.3 mile downstream from bridge on Interstate Highway 94, 0.7 miles upstream from mouth, 1.3 miles southwest of Bighorn, and 4.4 miles east of Custer.

DRAINAGE AREA.--22,885 sq mi.

PERIOD OF RECORD.--Chemical analyses: November 1945 to August 1947, August 1948, March 1949 to September 1972.
Water temperatures: April 1949 to September 1951, August 1952 to November 1958, June 1959 to September 1972. Maximum temperature of 31.5°C on Aug. 7, 1953, published in WSP 1291 and subsequent publications, has been found to be incorrect and should not be used.
Sediment records: May 1946 to September 1954, October 1955 to September 1958, October 1959 to June 1972 (discontinued). Prior to October 1948, published as "near Custer".

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 907 micromhos Mar. 16-18; minimum daily, 638 micromhos Sept. 1, 11, 12.
Water temperatures: Maximum, 22.0°C Aug. 14, 17; minimum, freezing point on many days during December to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
07...	1130	5500	14.0	11	10	72	25	76	3.4	200	0	290
NOV.												
04...	1105	5280	8.5	10	20	64	22	76	3.1	185	0	250
DEC.												
06...	1200	3360	2.0	8.7	20	70	25	76	3.5	197	0	250
JAN.												
07...	1145	4060	1.5	9.7	---	68	22	70	3.5	183	0	240
FEB.												
01...	1345	4000	.0	12	30	78	27	81	4.2	216	0	290
MAR.												
06...	1150	7070	3.5	11	20	75	25	71	4.3	204	0	270
APR.												
14...	1045	7170	5.0	10	10	72	25	76	4.2	207	0	270
MAY												
11...	1125	6730	8.5	9.4	20	77	26	81	4.0	202	0	280
JUNE												
12...	1315	6130	17.0	7.1	20	70	23	66	3.6	193	0	230
JULY												
05...	1125	2860	17.5	9.5	60	70	25	76	3.5	202	0	260
AUG.												
07...	1100	3230	21.0	6.6	30	57	20	58	3.0	163	0	200
SEP.												
05...	1120	3180	17.0	6.2	20	57	20	55	2.5	106	33	200

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	853	808	810	778	---	707	854	843	809	803	684	638
2	847	808	817	756	---	756	832	861	805	798	684	652
3	889	782	810	738	---	779	832	869	792	801	684	652
4	844	784	810	797	---	779	830	869	782	801	700	652
5	884	768	821	774	---	819	830	840	770	798	692	667
6	884	795	---	754	---	874	830	851	768	798	658	667
7	870	808	804	754	---	777	876	846	761	806	658	645
8	847	825	810	753	---	764	830	846	756	814	657	645
9	842	828	798	756	---	760	830	864	763	816	658	645
10	847	825	798	747	---	770	825	875	763	816	658	645
11	842	795	757	741	---	819	830	867	760	813	648	638
12	840	795	790	756	---	817	830	864	768	802	644	638
13	847	808	821	793	---	874	839	856	768	808	648	656
14	825	823	798	797	---	894	832	853	777	801	648	642
15	804	823	778	741	---	894	871	853	778	778	658	642
16	798	823	763	756	---	907	847	861	778	759	665	642
17	---	825	763	754	---	907	830	846	772	741	692	642
18	825	816	752	766	---	907	839	846	770	754	692	642
19	860	828	739	776	---	866	847	843	770	747	---	642
20	810	823	732	772	---	849	851	840	760	739	---	656
21	800	766	759	774	727	856	854	823	760	735	---	656
22	780	808	780	772	763	856	864	840	764	719	---	656
23	790	808	780	774	814	844	851	861	768	716	667	663
24	821	816	780	824	823	844	890	821	772	704	655	685
25	831	810	782	---	852	881	890	813	772	691	655	692
26	802	805	808	---	855	869	854	797	770	689	655	708
27	796	803	808	---	862	869	847	816	782	688	655	743
28	790	808	819	---	862	866	839	818	786	688	655	772
29	808	808	810	---	694	856	830	821	786	688	646	772
30	825	808	796	---	---	849	832	818	791	691	648	772
31	821	---	784	---	---	849	---	818	---	696	641	---
MONTH	831	808	791	---	---	837	845	843	774	758	663	669
YEAR	783											

06294700 BIGHORN RIVER AT BIGHORN, MONT.--Continued

EXTREMES, 1971-72.--Continued
Sediment concentrations: Maximum daily, 1,960 mg/l Feb. 21; minimum daily, 12 mg/l Dec. 22, 24.
Sediment discharge: Maximum daily, 37,000 tons Mar. 10; minimum daily, 137 tons Dec. 22, 24.

Period of record:
Specific conductance (1951-72): Maximum daily, 1,940 micromhos July 10, 1961; minimum daily, 384 micromhos June 20, 1951.
Water temperatures (1949-51, 1952-72): Maximum observed, 30.0°C July 17, 18, 1953; minimum, freezing point on many days during winter periods.
Sediment concentrations (1947-54, 1955-58, 1959-72): Maximum daily, 23,200 mg/l May 24, 1952; minimum daily, 8 mg/l Oct. 31, 1967.
Sediment discharge (1947-54, 1955-58, 1959-72): Maximum daily, 727,000 tons May 24, 1952; minimum daily, 46 tons Oct. 31, 1967.

REMARKS.--Flow affected by ice during most of winter months. Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
07...	7.3	.6	.44	--	586	.80	8700	280	120	2.0	878	7.9
NOV.												
04...	8.8	.5	.43	--	527	.72	7510	250	99	2.1	806	8.1
DEC.												
06...	10	.4	.12	120	541	.74	4910	280	120	2.0	859	8.2
JAN.												
07...	9.1	.5	.32	--	516	.70	5660	260	110	1.9	762	8.2
FEB.												
01...	12	.4	.38	--	613	.83	6620	310	130	2.0	926	8.0
MAR.												
06...	11	.5	.33	110	570	.78	10900	290	120	1.8	854	8.1
APR.												
14...	12	.4	.27	--	573	.78	11100	280	110	2.0	871	8.1
MAY												
11...	12	.4	.30	--	590	.80	10800	300	130	2.0	901	7.6
JUNE												
12...	9.7	.2	.06	120	505	.69	8360	270	110	1.8	774	7.9
JULY												
05...	9.6	.4	.13	--	550	.75	4250	280	110	2.0	820	8.4
AUG.												
07...	6.2	.3	.28	--	433	.59	3780	220	91	1.7	673	7.9
SEP.												
05...	6.9	.4	.02	100	433	.59	3720	220	83	1.6	663	8.4

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.5	7.5	5.0	3.0	0.0	0.0	6.0	5.5	18.0	16.0	20.0	16.0
2	9.5	9.0	3.5	1.0	0.0	0.0	5.0	7.0	15.5	15.0	20.0	16.5
3	11.5	7.0	4.0	0.0	0.0	0.0	3.0	9.0	14.0	14.0	18.0	17.5
4	11.5	7.5	5.0	0.0	0.0	0.0	5.0	10.0	12.5	14.0	18.5	---
5	14.0	8.0	5.0	0.5	0.0	1.5	8.5	9.5	13.0	15.5	20.5	16.5
6	14.0	6.5	2.5	1.5	0.0	5.0	9.0	7.5	14.0	18.0	20.0	18.0
7	14.0	6.5	0.0	1.5	0.0	2.5	9.5	7.0	15.0	17.0	20.5	15.5
8	12.0	6.5	0.0	3.0	0.0	2.5	8.5	6.5	17.0	18.0	20.5	16.0
9	11.0	8.5	0.0	3.0	0.0	3.0	6.0	7.5	16.5	18.5	20.5	17.5
10	13.0	10.0	0.0	2.0	0.0	4.0	6.0	9.0	14.5	18.5	21.0	17.0
11	13.0	7.5	0.0	0.5	0.0	4.5	6.5	7.0	17.5	19.0	21.0	15.0
12	13.5	7.5	0.0	0.5	0.0	6.0	7.0	9.0	15.5	17.0	21.5	15.5
13	12.0	9.5	0.0	0.0	0.0	6.0	6.0	8.5	14.5	21.0	21.5	17.0
14	12.0	7.0	0.0	0.0	0.0	8.5	4.5	15.0	14.0	19.0	22.0	16.5
15	10.0	7.0	3.0	0.5	0.0	8.5	7.0	12.0	14.0	18.5	21.5	16.0
16	8.5	6.5	0.5	1.0	0.0	8.5	8.0	12.0	13.5	18.0	21.5	16.5
17	10.5	5.5	5.0	0.5	0.0	9.5	8.5	11.5	17.5	17.5	22.0	16.5
18	10.0	6.0	5.0	0.0	0.0	8.0	5.0	13.0	16.0	17.5	21.5	16.5
19	9.0	6.0	3.0	0.0	0.0	9.0	5.0	13.0	13.0	15.0	---	17.0
20	10.5	9.0	3.0	0.0	0.0	8.5	7.5	12.0	12.0	14.0	---	15.0
21	10.5	7.5	4.0	0.0	0.5	7.5	7.5	13.5	14.0	13.5	---	13.0
22	12.0	5.5	4.0	0.0	2.0	8.0	7.5	12.5	14.0	20.0	---	14.5
23	10.5	5.5	1.0	0.0	1.0	8.0	7.5	12.0	17.0	19.5	20.0	14.5
24	12.5	6.0	1.0	0.0	0.0	6.0	6.5	10.5	16.0	19.0	19.0	13.0
25	12.0	6.0	3.0	0.0	2.5	6.5	8.0	12.0	17.0	20.0	18.5	10.0
26	11.5	6.0	0.0	0.0	1.5	5.5	7.0	8.0	15.0	19.0	21.5	10.5
27	9.0	6.0	0.0	0.0	0.5	3.0	7.5	12.0	17.0	21.0	19.0	13.0
28	5.0	6.5	0.0	0.0	5.0	3.5	9.0	13.0	14.5	20.5	18.5	11.5
29	4.5	5.5	0.0	0.0	0.0	3.0	8.0	13.0	16.0	20.5	20.0	10.0
30	5.5	5.5	1.0	0.0	---	4.0	7.5	14.0	16.5	21.5	20.0	12.0
31	8.0	---	3.0	0.0	---	6.0	---	16.0	---	20.0	18.5	---
MONTH	10.5	7.0	2.0	0.5	0.5	5.0	7.0	10.5	15.0	18.0	20.5	15.0
YEAR	9.0											

06294700 BIGHORN RIVER AT BIGHORN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, OCTOBER 1971 TO JUNE 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	3240	42	367	6220	89	1490	5780	24	375
2	4800	268	3470	6250	77	1300	5350	20	289
3	4950	1020	13600	5480	60	888	4600	20	248
4	4660	1110	14000	5260	58	824	4620	23	287
5	5100	554	7630	5240	63	891	3970	16	172
6	5640	360	5480	5130	86	1190	3580	15	145
7	5430	288	4220	5100	52	716	4620	19	237
8	5460	202	2980	5100	40	551	4600	17	211
9	4560	137	1690	5190	43	603	4500	18	219
10	2990	70	565	5280	45	642	4470	25	302
11	3400	184	1690	5020	48	651	4200	14	159
12	5300	145	2070	5170	42	586	4250	13	149
13	5320	105	1510	5130	36	499	4450	18	216
14	5350	90	1300	5150	34	473	4640	17	213
15	5350	81	1170	5060	34	465	4690	18	228
16	5500	76	1130	5190	27	378	4600	16	199
17	4990	82	1100	4910	25	331	4910	23	305
18	3680	138	1370	4910	25	331	4750	22	282
19	6200	915	15300	4950	27	361	4620	19	237
20	6150	1360	22600	5240	46	651	4660	18	226
21	6730	699	12700	5460	37	545	4410	14	167
22	6940	316	5920	4910	26	345	4240	12	137
23	7100	241	4620	5480	37	547	4240	13	149
24	7300	206	4060	5430	40	586	4240	12	137
25	7240	200	3910	5570	34	511	4160	14	157
26	7220	192	3740	5620	32	486	4000	20	216
27	6630	149	2670	5800	36	564	4000	24	259
28	6130	80	1320	5840	23	363	4100	19	210
29	6100	79	1300	5870	29	460	4200	14	159
30	6320	95	1620	5590	30	453	4150	20	224
31	6150	82	1360	--	--	--	4140	21	235
TOTAL	171930	--	146462	160550	--	18681	137740	--	6749

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4160	18	202	4000	--	--	8250	840	18700
2	4100	16	177	3600	--	--	8120	320	7020
3	4100	16	177	3800	--	--	7870	340	7220
4	4100	19	210	4300	--	--	6870	216	4010
5	4100	45	498	4200	--	--	6390	186	3210
6	4160	31	348	4100	--	--	7370	313	6230
7	4100	30	332	4100	--	--	9110	1090	26800
8	4160	26	292	4100	--	--	9080	1110	27200
9	4180	23	260	4200	--	--	8770	1020	24200
10	4220	24	273	4200	--	--	8300	1650	37000
11	4240	21	240	4200	--	--	7770	728	15300
12	4260	23	265	4200	--	--	6820	751	13800
13	3930	46	488	4300	--	--	5190	938	13100
14	3880	31	325	4300	--	--	4930	691	9200
15	3900	101	1060	4400	--	--	4470	631	7620
16	4000	138	1490	4400	--	--	4180	538	6070
17	4050	59	645	4700	--	--	3970	438	4690
18	4200	45	510	5100	--	--	5170	463	6460
19	4100	140	1550	5500	--	--	6150	373	6190
20	4200	178	2020	6000	--	--	6100	253	4170
21	4300	75	871	6500	1960	34400	5940	203	3260
22	4200	65	737	6000	1150	18600	5960	173	2780
23	4000	66	713	5700	625	9620	6340	220	3770
24	3800	216	2220	5400	373	5440	6460	176	3070
25	3600	--	--	5300	324	4640	6490	146	2560
26	3400	--	--	5200	225	3160	6510	154	2710
27	3300	--	--	5060	139	1900	6420	163	2830
28	3500	--	--	6560	510	9030	6320	116	1980
29	3900	--	--	8850	950	22700	6250	99	1670
30	4100	--	--	--	--	--	6200	83	1390
31	4300	--	--	--	--	--	6200	80	1340
TOTAL	124540	--	--	142270	--	--	203970	--	275550

06294700 BIGHORN RIVER AT BIGHORN, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, OCTOBER 1971 TO JUNE 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6900	241	4490	7000	105	1980	4410	99	1180
2	8170	485	10700	7140	140	2700	7090	173	3290
3	8170	336	7410	6700	253	4580	7800	219	4610
4	8170	280	6180	6920	229	4280	7700	261	5430
5	8140	233	5120	6900	150	2790	7240	306	5980
6	7080	188	3590	6870	94	1740	6870	313	5810
7	6970	289	5440	6950	70	1310	6480	299	5230
8	7970	240	5160	6970	63	1190	5620	346	5250
9	7200	129	2510	7000	110	2080	6250	264	4460
10	7200	106	2060	6680	184	3320	6320	270	4740
11	7200	105	2040	6730	153	2780	6130	221	3660
12	7170	93	1800	6660	109	1960	5980	186	3000
13	7120	89	1710	5750	75	1160	6200	189	3160
14	7170	83	1610	5480	75	1110	6270	186	3150
15	7120	89	1710	5460	75	1110	6250	143	2410
16	7120	100	1920	5460	71	1050	6730	139	2530
17	7100	81	1550	5750	93	1440	7100	139	2660
18	7200	74	1440	6100	100	1650	7120	124	2380
19	7120	69	1330	6560	166	2940	6970	104	1960
20	7070	70	1340	6560	170	3010	6680	108	1950
21	6420	63	1090	6320	225	3840	6130	126	2090
22	6900	94	1750	6080	296	4860	5960	119	1910
23	7040	153	2910	6270	571	9670	6130	104	1720
24	7100	309	5920	5910	364	5810	6370	96	1650
25	7000	169	3190	5210	204	2870	6630	85	1520
26	6940	76	1420	5500	173	2570	6150	101	1680
27	6900	65	1210	4730	105	1340	5960	101	1630
28	6900	65	1210	2400	106	687	5780	83	1300
29	6820	68	1250	2460	128	850	5370	86	1250
30	6700	80	1450	2550	79	544	5410	83	1210
31	--	--	--	3090	65	535	--	--	--
TOTAL	216080	--	90510	180120	--	77756	191060	--	88800

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, OCTOBER 1971 TO JUNE 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM
MAY										
23...	1340	13.5	6160	627	10400	69	91	96	98	100
JUNE										
05...	1430	16.0	7280	328	6450	34	52	94	97	100

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MONT.

LOCATION.--Lat 46°23'51", long 105°53'36", in SE¼SW¼ sec.31, T.8 N., R.47 E., Custer County, at Keogh Bridge, 1.6 miles upstream from Tongue River, and 2 miles west of Miles City.

DRAINAGE AREA.--42,847 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1968 to September 1972.
Water temperatures: October 1968 to September 1972.

EXTREMES.--1971-72:
Dissolved solids: Maximum, 484 mg/l Apr. 1-30; minimum, 174 mg/l June 1-18.
Hardness: Maximum, 260 mg/l Apr. 1-30; minimum, 100 mg/l June 1-18, July 1-5.
Specific conductance: Maximum daily, 768 micromhos Dec. 15; minimum daily, 256 micromhos June 8.
Water temperatures: Maximum, 24.0°C on several days during July and August; minimum, freezing point on many days during December to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
01-31	--	12300	--	12	0	53	19	58	3.9	173	0	180
NOV.												
01-30	--	9720	--	11	10	54	20	60	4.1	178	0	190
DEC.												
01-09	--	8140	--	11	0	55	20	58	3.3	184	0	190
10-20	--	6910	--	13	0	62	21	65	3.1	198	0	200
21-31	--	6740	--	12	0	54	18	54	2.8	175	0	180
JAN.												
01-26	--	6480	--	13	10	58	20	57	3.6	173	10	190
MAR.												
04-31	--	16200	--	11	20	56	20	61	4.4	188	0	200
APR.												
01-30	--	11700	--	10	10	65	23	65	3.6	195	0	210
MAY												
01-19	--	13400	--	12	30	54	20	61	3.3	177	0	180
20-31	--	24500	--	14	50	38	12	33	2.4	129	0	89
JUNE												
01-18	--	44200	--	12	10	29	7.1	18	2.1	101	0	53
19-30	--	33900	--	11	20	31	9.0	24	3.4	99	0	65
JULY												
01-05	--	26100	--	11	10	27	8.3	22	2.0	100	0	70
06-31	--	17700	--	9.8	30	35	11	32	3.3	124	0	100
AUG.												
01-05	--	13200	--	12	10	40	15	39	3.5	146	0	120
06-31	--	10900	--	11	10	42	16	44	4.3	156	0	120
SEP.												
01-30	--	9840	--	8.9	20	42	15	36	3.0	153	0	120
WTD. AVG.	--	--	--	11	17	44	15	42	3.3	147	0	131
TIME WTD. AVG.	--	14800	--	11	14	49	17	49	3.5	161	1	154
TONS PER DAY	--	--	--	450	1	1760	591	1690	131	5870	14	5220

ANALYSES OF ADDITIONAL SAMPLES

DEC.												
01...	1515	9600	2.5	11	10	59	20	61	3.3	138	41	190
MAR.												
10...	1145	22000	.5	12	20	52	19	60	4.2	163	0	200
JUNE												
07...	1645	48400	19.0	11	80	23	7.0	15	1.5	83	0	47
SEP.												
12...	1005	10400	15.0	9.2	20	38	15	37	2.7	151	0	110

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MONT.--Continued

EXTREMES.--Continued

Period of record:
Dissolved solids: Maximum, 624 mg/l May 1-5, 1970; minimum, 174 mg/l June 1-18, 1972.
Hardness: Maximum, 290 mg/l May 1-5, 1970; minimum, 97 mg/l June 1-17, 1969, July 6-15, 1971.
Specific conductance: Maximum daily, 1,030 micromhos Jan. 10, 1970; minimum daily, 226 micromhos May 30, 1969.
Water temperatures: Maximum, 26.5°C Aug. 8, 1971; minimum, freezing point on many days during winter periods.

REMARKS.--Daily samples for chemical analysis composited by discharge. Additional samples were collected for more comprehensive definition of water quality at this station. Water discharge computed by subtracting the discharge for Tongue River at Miles City, Mont. (station 06308500), from that of Yellowstone River at Miles City, Mont. (station 06309000). Unsafe ice conditions Jan. 27 to Mar. 3, no samples taken. Flow affected by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
01-31	9.6	.5	.56	--	424	.58	14100	210	69	1.7	653	8.2
NOV.												
01-30	9.1	.5	.00	--	436	.59	11400	220	71	1.8	670	8.1
DEC.												
01-09	10	.4	.14	--	439	.60	9650	220	69	1.7	667	8.2
10-20	11	.4	.32	--	474	.64	8840	240	79	1.8	730	8.3
21-31	10	.4	.34	--	419	.57	7630	210	65	1.6	632	8.3
JAN.												
01-26	9.0	.4	.49	--	448	.61	7840	230	69	1.6	670	8.4
MAR.												
04-31	8.8	.5	.35	.020	456	.62	19900	220	68	1.8	673	7.8
APR.												
01-30	11	.5	.10	.000	484	.66	15300	260	97	1.8	754	7.5
MAY												
01-19	9.2	.5	.04	.000	427	.58	15400	220	72	1.8	674	8.0
20-31	5.0	.0	.05	.010	257	.35	17000	140	38	1.2	419	7.7
JUNE												
01-18	3.0	.2	.02	.000	174	.24	20800	100	19	.8	286	7.3
19-30	6.0	.2	1.1	.000	203	.28	18600	110	33	1.0	332	6.9
JULY												
01-05	3.8	.3	.02	.010	194	.26	13700	100	20	1.0	307	7.6
06-31	6.4	.3	.55	.010	261	.36	12500	130	31	1.2	416	7.6
AUG.												
01-05	6.7	.4	.65	.010	311	.42	11100	160	42	1.3	501	7.3
06-31	10	.5	.98	.020	329	.45	9680	170	43	1.5	543	7.2
SEP.												
01-30	6.7	.4	.03	.000	307	.42	8160	170	41	1.2	511	7.7
WTD. AVG.	7.3	.4	.33	--	329	.45	--	170	50	1.4	516	7.6
TIME WTD. AVG.	8.3	.4	[illegible]	--	373	.51	--	192	58	1.5	582	7.8
TONS PER DAY	290	14	13	--	13100	--	--	--	--	--	--	--
LYSES OF ADDITIONAL SAMPLES												
DEC.												
01...	9.7	.4	.23		464	.63	12000	230	48	1.8	682	8.4
MAR.												
10...	9.1	.4	.41		439	.60	26100	210	74	1.8	661	7.4
JUNE												
07...	2.8	.3	.38		150	.20	19600	86	18	.7	247	6.8
SEP.												
12...	5.8	.5	.01	.000	293	.40	8230	160	33	1.3	475	8.2

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	592	661	677	732	---	---	751	726	306	360	464	521
2	570	683	677	732	---	---	760	704	288	335	450	512
3	595	674	677	708	---	---	751	711	295	294	450	512
4	652	664	677	670	---	659	751	739	311	269	528	512
5	690	633	677	676	---	656	758	726	290	274	537	512
6	673	633	677	692	---	652	751	726	280	407	586	512
7	666	632	551	692	---	652	751	730	263	398	535	512
8	659	633	692	---	---	673	756	704	256	401	528	512
9	703	645	661	---	---	660	751	671	261	377	528	512
10	703	650	710	697	---	631	751	670	268	393	535	495
11	625	644	749	684	---	638	738	670	266	371	542	483
12	631	654	766	686	---	606	741	663	284	373	537	487
13	606	644	753	657	---	606	741	637	263	377	532	512
14	657	648	732	657	---	617	741	653	261	381	532	512
15	646	647	768	570	---	607	741	627	290	439	532	530
16	643	662	753	725	---	620	741	627	290	414	532	458
17	638	650	710	725	---	625	740	614	297	415	532	465
18	607	661	681	672	---	673	740	---	294	418	528	458
19	594	662	679	672	---	703	741	608	329	418	546	465
20	652	668	676	667	---	718	740	450	314	420	498	472
21	666	662	638	692	---	721	741	413	315	414	478	487
22	670	673	621	672	---	721	743	415	306	418	546	495
23	657	647	636	683	---	721	751	490	324	419	546	512
24	673	654	526	608	---	718	756	421	318	407	546	503
25	670	676	401	---	---	721	762	401	290	428	544	530
26	666	674	665	647	---	735	760	404	326	423	546	530
27	676	676	664	---	---	739	751	419	336	438	546	530
28	666	674	677	---	---	739	751	410	340	442	546	503
29	659	673	704	---	---	730	741	376	356	424	537	530
30	681	676	695	---	---	730	751	358	372	425	546	530
31	666	---	714	---	---	739	---	323	---	421	537	---
MONTH	650	658	674	---	---	679	748	570	300	393	528	503
YEAR	577											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
OCT.					
05...	1240	12900	.080	--	--
NOV.					
02...	0800	10800	.070	--	--
DEC.					
01...	1515	9600	.020	150	10
JAN.					
10...	1530	6550	.020	--	--
FEB.					
09...	1330	7800	.020	--	--
MAR.					
10...	1145	22000	.030	160	38
APR.					
05...	0730	12800	.040	--	--
MAY					
02...	1140	12200	.030	--	--
JUNE					
07...	1645	48400	.040	120	10
JULY					
11...	1400	20000	.040	--	--
AUG.					
02...	1050	11500	.020	--	--
SEP.					
12...	1005	10400	.020	130	0

06296120 YELLOWSTONE RIVER NEAR MILES CITY, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	4.5	---	0.0	0.0	0.0	7.0	8.0	21.0	20.0	23.0	23.0
2	8.5	4.0	2.0	0.0	0.0	0.0	7.0	10.5	21.0	20.0	23.0	20.0
3	10.0	4.0	4.0	0.0	0.0	0.0	6.0	13.0	19.0	19.0	23.0	20.0
4	12.0	4.0	2.0	0.0	0.0	0.0	7.0	14.0	18.0	18.0	22.0	20.0
5	13.0	3.0	1.0	0.0	0.0	0.0	9.0	15.0	18.0	18.0	22.0	20.0
6	14.5	2.0	0.0	0.0	0.0	0.0	9.0	13.0	18.0	17.0	23.0	19.0
7	14.5	3.0	0.0	0.0	0.0	0.0	10.5	10.0	19.0	20.0	23.0	19.0
8	13.0	3.0	0.0	---	0.0	0.0	11.0	8.0	21.0	20.0	24.0	18.0
9	13.5	4.0	0.0	---	0.0	0.0	11.0	9.0	20.0	20.0	24.0	18.0
10	15.0	4.0	0.0	0.0	0.0	0.5	11.0	10.0	21.0	20.0	24.0	17.0
11	15.0	5.0	0.0	0.0	0.0	0.5	10.0	11.5	19.0	20.0	24.0	18.0
12	13.0	5.0	0.0	0.0	0.0	0.5	11.0	12.0	---	20.0	23.0	18.0
13	14.0	6.5	0.0	0.0	0.0	1.0	10.0	14.0	19.0	20.0	23.0	18.0
14	15.0	7.0	0.0	0.0	0.0	2.0	10.0	16.0	19.0	20.0	23.0	18.0
15	13.0	6.0	0.0	0.0	0.0	2.0	11.0	17.5	19.0	20.0	23.0	18.0
16	18.5	6.5	0.0	0.5	0.0	4.5	11.0	19.0	20.0	20.0	23.0	18.0
17	8.0	5.5	0.0	1.0	0.0	9.0	10.0	19.5	20.0	20.0	23.0	18.0
18	7.0	4.5	0.0	0.0	0.0	11.0	9.0	---	20.0	20.0	23.0	18.0
19	7.5	---	0.0	0.0	0.0	11.0	9.0	17.0	20.0	20.0	23.0	18.0
20	8.0	---	0.0	0.0	0.0	11.0	10.0	17.0	20.0	20.0	23.0	16.0
21	8.5	---	0.0	0.0	0.0	11.0	11.0	17.0	20.0	20.0	23.0	16.0
22	10.0	---	0.0	0.0	0.0	11.0	11.0	17.0	19.0	20.0	23.0	15.0
23	10.5	---	0.0	0.0	0.0	10.0	12.0	17.0	19.0	21.0	23.0	13.0
24	11.0	---	0.0	0.0	0.0	10.0	12.5	17.0	19.0	21.0	23.0	11.0
25	10.5	---	0.0	---	0.0	10.0	11.0	15.0	20.0	21.0	23.0	11.0
26	10.0	---	0.0	0.0	0.0	7.0	12.0	16.0	20.0	21.0	23.0	11.0
27	8.0	---	0.0	0.0	0.0	5.5	13.0	15.0	20.0	22.0	23.0	10.0
28	6.0	---	0.0	0.0	0.0	4.5	13.0	15.0	20.0	23.0	23.0	10.0
29	4.0	---	0.0	0.0	0.0	4.5	13.0	17.0	21.0	24.0	23.0	10.0
30	3.0	---	0.0	0.0	---	5.5	11.0	18.0	21.0	24.0	23.0	10.0
31	3.5	---	0.0	0.0	---	7.0	---	21.5	---	24.0	23.0	---
MONTH	10.5	---	0.5	0.0	0.0	4.5	10.5	14.5	19.5	20.5	23.0	16.5
YEAR	10.5											

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MONT.

LOCATION.--Lat 45°00'32", long 106°50'08", in NW¼NE¼ sec.33, T.9 S., R.40 E., Big Horn County, at bridge on county road, 1.8 miles east of Decker, and 3.2 miles downstream from gaging station.

DRAINAGE AREA.--1,477 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: October 1965 to September 1972.
Water temperatures: October 1965 to September 1972.

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 1,490 micromhos Jan. 11; minimum daily, 215 micromhos June 2.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.												
22...	1500	320	12	140	75	41	36	3.8	284	0	200	4.2
NOV.												
19...	1020	248	4.7	90	72	43	30	2.2	265	0	190	4.2
DEC.												
20...	1130	a200	8.9	130	72	43	29	2.7	286	0	170	2.7
JAN.												
18...	1130	a220	12	120	75	44	30	2.9	285	0	180	3.8
FEB.												
02...	1200	210	12	20	78	44	36	3.3	270	0	200	5.0
MAR.												
30...	1330	400	8.0	130	79	57	46	3.5	300	0	280	4.7
APR.												
21...	1345	364	6.5	200	70	44	37	3.0	253	4	210	3.5
MAY												
24...	0830	1640	8.3	150	31	13	13	1.9	114	0	67	1.8
JUNE												
21...	0815	1170	9.5	240	36	18	14	1.9	140	0	73	2.0
AUG.												
01...	0810	224	7.0	70	68	43	34	3.7	275	0	190	5.0
23...	0830	217	7.7	110	76	47	39	4.2	304	0	210	4.0
SEP.												
26...	1405	276	5.6	260	70	49	36	4.0	268	3	210	4.3

a Daily mean discharge.

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	817	755	745	790	804	---	977	638	278	469	762	836
2	817	782	877	752	804	---	954	635	215	486	759	830
3	815	781	884	758	807	810	956	644	216	478	730	804
4	845	777	944	755	807	809	954	647	237	488	719	801
5	822	790	751	772	804	808	947	625	233	468	696	800
6	763	792	852	777	800	862	949	584	219	466	671	809
7	775	793	897	774	801	466	944	589	227	486	655	750
8	783	844	840	779	834	605	912	592	234	498	677	750
9	795	758	900	742	839	604	873	583	254	517	719	746
10	808	759	890	749	857	564	893	580	250	526	713	760
11	809	769	890	1490	804	710	876	513	262	528	705	773
12	803	771	807	1440	804	749	869	509	258	549	736	770
13	786	789	809	856	808	800	832	539	252	549	749	765
14	784	787	817	852	804	880	821	532	253	574	766	785
15	765	786	840	916	770	914	806	527	269	580	805	773
16	769	711	769	914	790	914	800	429	301	562	814	773
17	734	710	777	919	771	900	800	367	319	601	823	783
18	733	737	776	754	790	898	743	330	374	620	846	787
19	758	761	750	748	732	916	742	277	371	615	848	783
20	759	789	754	759	745	916	758	274	394	637	821	764
21	760	793	771	755	746	916	757	814	387	627	808	816
22	758	793	773	747	725	924	781	459	363	649	830	820
23	755	782	775	734	724	939	785	342	364	672	832	819
24	764	782	777	733	690	944	779	347	407	673	852	819
25	762	749	774	878	693	891	749	357	420	726	834	828
26	717	750	804	874	692	943	747	360	415	725	817	825
27	714	767	805	870	714	948	748	342	424	752	842	805
28	716	775	834	875	715	977	753	332	426	778	846	777
29	712	768	839	904	---	991	731	319	439	774	848	745
30	774	844	799	849	---	1040	715	317	454	752	852	739
31	776	---	798	847	---	980	---	294	---	766	866	---
MONTH	773	775	817	850	774	849	832	474	317	600	782	788
YEAR	718											

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MONT.--Continued

EXTREMES, 1971-72.--Continued
Water temperatures: Maximum, 26.0°C Aug. 11; minimum, freezing point on many days during October to March.

Period of record:
Specific conductance: Maximum daily, 1,490 micromhos Aug. 12, 1966, Jan. 11, 1972; minimum daily, 196 micromhos May 30, 1967.
Water temperatures: Maximum, 31.0°C July 16, 1966; minimum, freezing point on many days during winter period.

REMARKS.--During periods of backwater the site of sampling is moved upstream 0.5 mile.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRATE (NO3) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)
OCT.												
22...	.4	.3	100	513	.70	443	360	127	.8	767	8.3	8.0
NOV.												
19...	.4	.3	80	474	.64	317	360	143	.7	734	8.2	1.0
DEC.												
20...	.3	1.5	90	475	.65	257	360	125	.7	750	8.0	.5
JAN.												
18...	.4	1.9	70	491	.67	292	370	140	.7	734	8.2	.0
FEB.												
02...	.3	1.8	90	519	.71	294	380	159	.8	818	7.7	.0
MAR.												
30...	.4	.4	90	623	.85	673	430	184	1.0	914	8.2	4.5
APR.												
21...	.4	.1	80	505	.69	496	330	136	.9	774	8.4	12.5
MAY												
24...	.2	.9	30	193	.26	855	130	36	.5	322	7.9	18.0
JUNE												
21...	.2	.8	50	225	.31	711	160	45	.5	380	7.7	—
AUG.												
01...	.4	.2	100	489	.67	296	350	124	.8	765	8.1	19.5
23...	.4	.3	90	538	.73	315	380	151	.9	816	8.3	18.5
SEP.												
26...	.4	.1	90	514	.70	383	380	155	.8	811	8.4	7.0

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	2.0	1.0	0.0	0.0	---	4.5	9.0	15.0	19.5	19.0	16.0
2	10.0	3.0	0.0	0.0	0.0	---	3.5	7.0	16.0	17.0	19.0	15.0
3	9.0	3.0	0.0	0.0	0.0	1.0	3.0	9.0	18.0	14.5	17.0	16.0
4	14.0	2.5	0.0	0.0	0.0	0.0	4.0	10.0	15.0	14.0	17.0	15.0
5	20.0	2.0	0.0	0.0	0.0	1.0	9.0	13.0	15.5	15.0	20.0	16.5
6	19.0	1.0	0.0	0.0	0.0	3.0	9.5	10.0	14.5	17.0	17.0	16.0
7	12.0	0.0	0.0	0.0	0.0	1.0	7.0	10.0	15.0	16.0	21.0	19.5
8	10.0	0.0	0.0	0.0	0.0	1.5	9.5	8.0	15.0	17.5	19.0	19.0
9	11.5	5.0	0.0	0.0	0.0	2.0	11.0	10.0	15.0	22.0	22.5	16.0
10	12.0	10.0	0.0	0.0	0.0	3.0	10.0	11.0	15.0	22.0	21.0	17.0
11	12.0	0.5	0.0	0.0	0.0	5.0	10.0	10.0	17.0	20.0	26.0	15.0
12	11.5	7.0	0.0	0.0	0.0	3.0	11.0	10.0	17.0	19.0	20.0	15.0
13	10.0	4.0	0.0	0.0	0.0	4.0	10.0	10.0	15.5	20.0	20.0	17.0
14	9.5	5.0	0.0	0.0	0.0	5.0	8.0	13.0	15.0	20.0	21.0	14.0
15	8.0	5.0	0.0	0.0	0.0	5.0	10.0	14.5	16.0	18.0	23.0	15.0
16	7.5	4.5	0.0	0.0	0.0	6.0	12.0	18.0	17.0	18.0	21.5	15.0
17	7.0	5.0	0.0	0.0	0.0	10.5	10.0	18.0	18.0	18.5	23.0	14.0
18	6.0	3.0	0.0	0.0	0.0	8.0	8.0	15.0	18.0	18.0	23.0	13.0
19	10.0	2.0	0.0	0.0	0.0	12.0	6.0	14.0	15.0	16.0	22.0	15.0
20	11.0	3.5	0.0	0.0	0.0	10.0	7.0	13.0	14.0	15.0	22.0	14.0
21	10.5	3.0	0.0	0.0	0.0	12.0	7.0	12.0	16.0	15.0	19.0	10.0
22	10.0	2.5	0.0	0.0	0.0	9.0	10.0	13.5	16.0	16.0	20.0	11.0
23	6.0	4.0	0.0	0.0	0.0	10.0	13.0	14.0	18.0	17.0	19.0	11.0
24	7.0	2.0	0.0	0.0	0.0	8.0	9.0	15.0	17.0	17.0	18.0	10.0
25	7.0	3.0	0.0	0.0	1.0	8.0	9.5	11.0	15.0	18.5	16.0	10.0
26	3.0	4.0	0.0	0.0	1.0	8.0	10.0	10.0	17.0	18.0	16.5	8.0
27	4.0	1.0	0.0	0.0	0.0	4.5	10.0	10.5	16.0	19.0	18.0	9.0
28	4.0	0.0	0.0	0.0	0.0	4.0	10.0	12.5	17.0	17.0	17.5	13.0
29	0.0	1.0	0.0	0.0	---	2.0	11.0	13.5	17.0	20.0	17.0	9.0
30	2.0	1.5	0.0	0.0	---	4.0	11.0	13.0	19.5	21.0	17.5	9.0
31	2.0	---	0.0	0.0	---	4.5	---	13.0	---	21.0	17.0	---
MONTH	9.0	3.0	0.0	0.0	0.0	5.5	9.0	12.0	16.0	18.0	19.5	14.0
YEAR	9.0											

06308500 TONGUE RIVER AT MILES CITY, MONT.
(Irrigation network station)

LOCATION.--Lat 46°21'30", long 105°48'24", in SE¼ sec.23, T.7 N., R.47 E., Custer County, at gaging station 4 miles south of Miles City and 8 miles upstream from mouth.

DRAINAGE AREA.--5,379 sq mi.

PERIOD OF RECORD.--Chemical analyses: September 1948 to September 1972.
Water temperatures: April 1949 to September 1972.
Sediment records: June 1946 to September 1951.

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 1,640 micromhos Dec. 9; minimum daily, 321 micromhos Mar. 1.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT.												
06...	0845	410	11.0	6.6	40	44	27	70	4.9	219	0	210
NOV.												
01...	1205	341	1.0	6.6	50	69	50	82	5.2	318	0	290
DEC.												
01...	1115	345	.5	6.4	20	75	55	88	5.3	334	0	330
JAN.												
11...	1040	128	.0	7.9	20	80	58	88	4.8	363	0	330
FEB.												
10...	1415	198	.0	9.4	20	84	59	78	5.5	388	0	310
MAR.												
09...	1400	2800	1.0	7.0	20	31	17	39	5.2	139	0	120
APR.												
04...	1430	1230	8.5	8.2	20	70	47	64	6.0	263	0	270
MAY												
02...	1610	604	12.0	4.8	80	68	51	110	8.4	283	0	360
JUNE												
09...	0840	1660	24.0	6.8	40	45	25	30	3.2	169	0	130
JULY												
14...	1005	361	21.0	6.9	20	50	30	50	4.1	228	0	160
AUG.												
02...	1530	233	22.5	6.9	20	54	33	65	4.6	259	0	200
SEP.												
12...	1545	249	19.5	7.2	20	58	42	60	4.9	268	0	210

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	444	1030	1080	1260	1110	321	947	1350	699	564	777	774
2	807	1020	1170	1300	1110	448	935	1090	623	533	768	774
3	430	1020	1140	1270	1120	516	921	1090	622	548	768	795
4	437	1020	1330	1260	1110	512	921	1090	579	575	768	795
5	638	1020	1340	1250	1110	580	897	1060	584	584	841	797
6	725	1180	1550	1180	1110	589	897	1050	572	623	787	812
7	930	1200	1540	1230	1110	497	894	1040	561	650	773	812
8	930	1070	1540	1200	1110	374	897	1060	552	653	777	812
9	1020	1050	1640	1200	1080	437	894	1050	541	671	777	795
10	1010	1010	1460	1160	1080	444	918	1070	562	664	768	795
11	1060	1010	1540	1100	1080	344	935	1120	711	663	877	795
12	1070	981	1550	1120	1070	394	953	1130	515	664	877	795
13	1090	984	1550	1130	1040	539	924	937	433	677	765	812
14	1090	1030	1590	1100	1070	580	935	1230	467	676	746	795
15	1060	1020	1590	1090	1070	602	935	1030	411	680	746	795
16	1040	1020	1180	1120	1080	641	918	1040	402	715	746	795
17	895	1020	1190	1120	1070	751	956	1040	414	715	816	818
18	895	1020	1340	1170	1040	850	1020	1030	665	775	838	818
19	408	1040	1180	1170	1040	959	1010	1040	611	786	765	818
20	484	1070	1110	1170	901	1020	997	1020	525	779	823	818
21	805	1060	1130	1220	422	1090	997	1370	525	764	715	795
22	805	1090	1100	1170	489	1090	981	996	542	754	699	795
23	984	1080	1090	1140	422	1090	981	940	636	756	699	795
24	987	1030	1090	1130	535	1060	981	901	610	750	795	774
25	1060	1060	1110	1130	719	1050	981	873	649	775	795	795
26	1050	1050	1110	1100	699	1020	1090	826	541	1070	795	770
27	1050	1050	1110	978	776	990	1150	826	598	1080	795	774
28	1050	1050	1160	1100	774	975	1240	801	627	1030	795	774
29	1040	1050	1180	1120	325	933	1320	749	586	952	795	812
30	1050	1080	1220	1130	---	936	1380	745	548	828	775	812
31	1020	---	1280	1130	---	930	---	717	---	813	775	---
MONTH	883	1050	1300	1160	920	728	994	1010	564	734	782	797
YEAR	910											

EXTREMES, 1971-72.--Continued

Water temperatures: Maximum, 24.0°C Aug. 17; minimum, freezing point on many days during October to March.

Period of record:

Specific conductance (1951-72): Maximum daily, 2,390 micromhos Sept. 11, 1958; minimum daily, 215 micromhos Feb. 16, 1971.

Water temperatures: Maximum observed, 30.0°C July 20, 1954; minimum, freezing point on many days during winter periods.

REMARKS.--Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
06...	2.3	.5	.07	--	473	.64	524	220	41	2.1	724	7.9
NOV.												
01...	3.4	.3	.06	--	663	.90	610	380	120	1.8	1030	8.1
DEC.												
01...	5.3	.4	.04	150	730	.99	680	410	140	1.9	1080	8.2
JAN.												
11...	6.3	.4	.17	--	755	1.03	261	440	140	1.8	1120	7.8
FEB.												
10...	5.2	.3	.29	--	744	1.01	398	450	130	1.6	1100	7.8
MAR.												
09...	2.8	.2	.16	110	291	.40	2200	150	33	1.4	463	7.2
APR.												
04...	4.7	.3	.35	110	601	.82	2000	370	150	1.5	899	8.1
MAY												
02...	5.7	.3	.21	--	748	1.02	1220	380	150	2.5	1100	7.9
JUNE												
09...	2.4	.3	.13	70	327	.44	1470	220	77	.9	535	7.9
JULY												
14...	3.0	.5	.04	--	417	.57	406	250	61	1.4	678	8.0
AUG.												
02...	3.0	.3	.13	--	495	.67	311	270	58	1.7	787	8.1
SEP.												
12...	4.1	.3	.05	120	519	.71	349	320	98	1.5	809	8.2

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	0.0	0.0	0.0	0.0	0.0	4.0	7.0	20.0	21.0	20.0	17.0
2	8.0	0.5	0.0	0.0	0.0	0.0	5.5	6.0	20.0	20.0	20.5	16.0
3	5.0	1.0	0.0	0.0	0.0	0.0	4.0	10.5	21.0	17.0	19.0	17.0
4	7.0	0.0	0.0	0.0	0.0	0.0	3.0	12.0	21.0	16.0	17.0	16.5
5	9.0	0.0	0.0	0.0	0.0	0.0	5.5	14.0	20.5	18.0	20.0	16.0
6	10.0	0.0	0.0	0.0	0.0	0.0	9.0	12.0	21.0	20.0	19.0	17.0
7	9.0	0.0	0.0	0.0	0.0	0.0	9.0	10.0	22.0	20.5	20.0	13.0
8	8.0	0.0	0.0	0.0	0.0	0.0	9.0	9.0	23.0	20.0	19.5	15.0
9	9.5	0.0	0.0	0.0	0.0	0.0	10.0	8.5	23.0	21.0	19.0	16.5
10	10.0	0.0	0.0	0.0	0.0	0.0	9.5	10.0	21.0	21.0	21.0	15.0
11	10.0	0.0	0.0	0.0	0.0	0.0	9.0	10.0	22.5	20.0	21.5	13.0
12	10.0	0.0	0.0	0.0	0.0	0.0	10.5	9.5	22.0	20.0	22.0	15.0
13	8.0	0.0	0.0	0.0	0.0	0.5	10.0	10.0	20.5	21.0	21.5	15.0
14	10.0	4.0	0.0	0.0	0.0	2.0	8.0	14.0	20.0	21.0	22.0	13.0
15	7.0	3.0	0.0	0.0	0.0	3.5	9.0	16.0	20.0	18.0	22.5	14.0
16	5.0	2.0	0.0	0.0	0.0	5.5	10.5	18.5	20.0	18.0	23.0	13.0
17	7.0	1.5	0.0	0.0	0.0	7.0	10.0	19.0	21.0	18.5	24.0	14.0
18	6.5	1.0	0.0	0.0	0.0	7.0	9.5	18.5	19.0	18.5	22.0	15.0
19	6.5	1.5	0.0	0.0	0.0	8.0	7.0	17.5	20.0	17.0	21.0	14.0
20	5.0	2.0	0.0	0.0	0.0	9.0	8.0	17.0	18.0	14.0	22.0	12.5
21	5.5	2.5	0.0	0.0	0.0	8.0	9.0	19.0	18.5	14.0	22.0	9.0
22	5.0	2.0	0.0	0.0	0.0	8.0	11.0	19.0	17.0	17.0	23.0	12.0
23	7.0	1.0	0.0	0.0	0.0	8.5	10.0	19.5	20.5	17.0	22.0	11.0
24	6.5	1.0	0.0	0.0	0.0	8.0	9.0	19.0	21.0	19.0	20.0	10.0
25	7.0	0.5	0.0	0.0	0.0	7.0	9.5	19.0	20.0	20.0	17.0	8.0
26	7.5	1.0	0.0	0.0	0.0	6.5	10.0	17.0	18.0	20.5	18.0	5.5
27	4.0	1.0	0.0	0.0	0.0	---	9.0	16.5	20.0	21.0	18.5	8.0
28	1.0	1.0	0.0	0.0	0.0	2.0	11.0	16.0	19.5	20.5	19.0	6.0
29	0.0	0.5	0.0	0.0	0.0	---	10.0	16.0	20.0	21.0	20.0	6.5
30	0.0	0.0	0.0	0.0	---	2.0	11.5	18.0	21.5	21.5	20.5	8.0
31	0.0	---	0.0	0.0	---	2.5	---	17.0	---	20.0	18.0	---
MONTH	6.5	1.0	0.0	0.0	0.0	3.5	8.5	14.5	20.5	19.0	20.5	12.5
YEAR	9.0											

06324500 POWDER RIVER AT MOORHEAD, MONT.

LOCATION (revised).--Lat 45°04'10", long 105°52'00", in NW¼ sec.8, T.9 S., R.48 E., Powder River County, at footbridge at former gaging station site 0.9 mile upstream from discontinued post office at Moorhead, 1 mile upstream from present gage, and at mile 185.8.

DRAINAGE AREA.--8,088 sq mi (at gaging station).

CHEMICAL ANALYSES, OCTOBER 1971 TO JULY 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
OCT.											
14...	1500	186	130	65	250	660	--	.4	1440	--	723
NOV.											
02...	1530	281	140	64	--	730	190	--	1670	2.27	1270
DEC.											
01...	1400	237	150	67	--	--	160	--	1710	--	1090
JAN.											
11...	1100	122	160	72	250	690	170	.4	1030	1.40	339
FEB.											
10...	1530	109	150	67	--	650	260	--	1540	2.09	453
MAR.											
01...	1600	4930	94	25	62	340	22	.3	676	.92	9000
APR.											
04...	1530	486	140	57	220	680	120	.5	1520	2.07	2000
MAY											
11...	1400	639	96	39	--	460	97	--	1090	1.48	1880
JUNE											
08...	1400	1610	120	38	--	650	85	--	1260	1.71	5480
JULY											
06...	1000	486	86	33	120	380	66	.0	896	1.22	1180

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
OCT.								
14...	1500	186	.00	.00	.0	.00	.00	.00
JAN.								
11...	1100	122	.00	.00	.0	.00	.00	.00
APR.								
04...	1530	486	.00	.00	.0	.00	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	CYANIDE (CN) (MG/L)
OCT.									
14...	1500	186	0	0	280	2	0	7	.00
JAN.									
11...	1100	122	5	0	280	1	0	5	--
FEB.									
10...	1530	109	--	--	--	--	--	--	.00
MAR.									
01...	1600	4930	--	--	--	--	--	--	--
APR.									
04...	1530	486	0	0	260	0	0	20	.00

06324500 POWDER RIVER AT MOORHEAD, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: February 1951 to September 1953, October 1955 to September 1957, July 1969 to July 1972 (discontinued).
Water temperatures: February 1951 to September 1953, October 1955 to September 1957.

REMARKS.--Flow regulated by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, OCTOBER 1971 TO JULY 1972

DATE	HARDNESS (CA,MG) (MG/L)	SODIUM ADSORPTION RATIO	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.										
14...	590	4.5	.13	.03	--	--	--	--	.11	1.6
NOV.										
02...	610	--	.27	.23	--	--	--	--	.51	3.3
DEC.										
01...	650	--	.32	.24	--	--	--	--	.27	1.7
JAN.										
11...	700	4.1	.64	.09	--	--	--	--	.11	1.5
FEB.										
10...	650	--	.60	.38	--	--	--	--	.080	1.3
MAR.										
01...	340	1.5	.41	--	--	--	--	.030	--	7.0
APR.										
04...	580	4.0	.27	.05	--	--	--	--	.56	2.1
MAY										
11...	400	--	.23	.02	--	--	--	--	.90	1.0
JUNE										
08...	460	--	.45	.10	--	--	--	--	2.9	5.0
JULY										
06...	350	2.8	.00	--	1.0	1.0	.010	.030	.53	1.0

DATE	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
OCT.							
14...	.00	.00	.00	.00	.00	.00	.00
JAN.							
11...	.00	.00	.00	.00	.00	.00	.03
APR.							
04...	.00	.00	.00	.00	.00	.00	.00

DATE	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.								
14...	0	10	.9	2	5	5	0	20
JAN.								
11...	5	17	.4	31	6	1	1	20
FEB.								
10...	--	--	--	--	--	--	--	--
MAR.								
01...	--	30	--	--	--	--	--	--
APR.								
04...	0	10	.0	3	5	9	2	20

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT.									
14...	1500	9.5	7.5	1850	11.2	8.2	--	--	100
NOV.									
02...	1530	2.5	5.0	2210	--	8.2	--	--	270
DEC.									
01...	1400	.0	--	1900	12.0	7.9	--	--	19
JAN.									
11...	1100	.0	-3.5	1950	6.4	7.6	--	--	5
FEB.									
10...	1530	.0	-1.0	1600	3.0	7.8	--	--	18
MAR.									
01...	1600	.5	-5.0	850	9.2	7.5	--	--	100
APR.									
04...	1530	10.0	15.5	1750	7.0	7.8	--	--	140
MAY									
11...	1400	14.5	15.0	1400	8.6	8.0	--	--	35
JUNE									
08...	1400	25.5	27.5	1700	6.0	7.8	--	--	4100
JULY									
06...	1000	18.5	18.0	1190	7.6	8.0	149	--	170

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.
(Irrigation network, pesticide and International Hydrological Decade Station)

LOCATION.--Lat 47°40'42", long 104°09'22", in SW¼NE¼SW¼ sec.9, T.22 N., R.59 E., Richland County, at gaging station at Montana-Dakota Utilities Company powerplant, 0.2 mile downstream from bridge on State Highway 23, 2.5 miles south of Sidney, 3 miles downstream from Fox Creek, and 30 miles upstream from mouth.

DRAINAGE AREA.--69,103 sq mi.

PERIOD OF RECORD.--Chemical analyses: September 1948 to September 1972.
Water temperatures: January 1951 to September 1972.
Sediment records: October 1971 to September 1972.

EXTREMES.--1971-72:
Specific conductance: Maximum daily, 958 micromhos Dec. 19; minimum daily, 308 micromhos June 16.
Water temperatures: Maximum, 25.0°C Aug. 17; minimum, freezing point on many days during November to March.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
OCT. 28...	1400	13900	5.0	12	20	59	22	72	3.5	193	0	220
NOV. 23...	1030	10300	8.5	9.7	10	59	24	76	3.7	195	2	240
DEC. 29...	1000	5700	.5	13	10	63	24	71	3.8	213	0	220
JAN. 18...	1000	5300	2.0	13	10	65	25	69	5.8	222	0	230
FEB. 29...	1800	16000	3.5	11	60	52	20	60	5.6	161	0	200
MAR. 28...	1130	14800	5.0	14	40	67	28	81	4.6	228	0	260
APR. 19...	1230	12800	10.0	8.6	30	65	27	79	4.4	212	0	260
MAY 16...	1030	14700	16.0	11	40	60	24	80	4.2	190	0	250
JUNE 27...	1000	39100	20.0	11	70	31	11	40	3.0	132	0	110
JULY 18...	1000	17000	19.5	8.5	--	35	13	37	2.6	129	--	110
AUG. 17...	1000	9430	24.5	9.6	10	44	17	50	3.1	164	0	150
SEP. 19...	1600	10200	18.0	8.1	20	42	17	45	2.9	160	0	130

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT. 28...	1400	13900	526	0	.19	--	--	--	--	.18	1.8
NOV. 23...	1030	10300	534	20	.10	--	--	--	--	.090	1.5
DEC. 29...	1000	5700	498	10	.06	--	--	--	--	.060	1.2
JAN. 18...	1000	5300	564	20	.07	--	--	--	--	.070	3.3
FEB. 29...	1000	16000	476	30	.26	--	--	--	--	.060	1.7
MAR. 28...	1130	14800	628	10	.08	--	--	--	--	.080	1.9
APR. 19...	1230	12800	576	0	.06	--	--	.000	--	.19	1.9
MAY 16...	1030	14700	588	0	.04	--	--	.000	--	.19	1.9
JUNE 27...	1000	39100	286	10	.20	--	--	.010	--	1.1	1.9
JULY 18...	1000	17000	282	--	.04	.17	.17	.000	.030	.15	2.0
AUG. 17...	1000	9430	384	0	--	--	--	.010	--	--	1.9
SEP. 19...	1600	10200	344	20	--	--	--	.000	--	--	2.1

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.--Continued

EXTREMES, 1971-72.--Continued
Sediment concentrations: Maximum daily, 12,300 mg/l Oct. 4; minimum daily, 16 mg/l Feb. 1.
Sediment discharge: Maximum daily, 990,000 tons Oct. 4; minimum daily, 229 tons Feb. 1.

Period of record:
Specific conductance: Maximum daily, 2,780 micromhos Jan. 14, 1951; minimum daily, 193 micromhos Aug. 15, 1964.
Water temperatures: Maximum observed, 29.0°C July 23, 1960; minimum, freezing point on many days during winter periods.

REMARKS.--Prior to July 1969, at site 0.2 mile upstream. Prior to July 1972, sediment sampling and record computation under supervision of Corps of Engineers, U.S. Army. Flow affected by ice during most of winter months. Many reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
OCT.												
28...	12	.5	.32	140	498	.72	19700	240	80	2.0	753	8.0
NOV.												
23...	18	.5	.54	150	532	.73	14400	250	83	2.1	791	8.4
DEC.												
29...	12	.5	.00	170	512	.68	7660	260	81	1.9	784	8.0
JAN.												
18...	13	.3	.43	160	532	.77	8070	270	83	1.8	816	8.0
FEB.												
29...	12	.4	.41	160	443	.65	20600	210	80	1.8	710	7.5
MAR.												
28...	14	.4	.31	150	583	.85	23100	280	95	2.1	870	8.1
APR.												
19...	15	.4	.04	160	564	.78	19900	270	100	2.1	859	8.3
MAY												
16...	14	.5	.16	160	538	.80	23300	250	93	2.2	840	8.1
JUNE												
27...	6.9	.3	.16	100	279	.39	30200	120	14	1.6	435	8.1
JULY												
18...	6.0	.4	.00	100	276	.38	12900	141	35	1.4	441	6.4
AUG.												
17...	9.4	.4	.00	--	364	.52	9780	180	45	1.6	575	8.3
SEP.												
19...	7.4	.4	.00	--	332	.47	9470	170	44	1.5	532	8.2

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	INNE-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
28...	1400	5.0	-4.0	760	10.6	8.5	--	--	42
NOV.									
23...	1030	8.5	2.0	880	9.6	8.5	--	--	6
DEC.									
29...	1000	.5	-15.0	740	10.2	8.5	--	--	3
JAN.									
18...	1000	2.0	-10.0	805	10.4	8.2	--	--	8
FEB.									
29...	1000	3.5	-10.0	710	9.6	8.0	--	--	10
MAR.									
28...	1130	5.0	3.5	880	11.0	8.5	--	--	10
APR.									
19...	1230	10.0	11.0	870	10.4	8.5	--	--	0
MAY									
16...	1030	16.0	26.0	850	8.6	8.4	--	--	20
JUNE									
27...	1000	20.0	21.5	430	7.6	8.2	--	--	1500
JULY									
18...	1000	19.5	14.5	435	8.6	8.5	102	50	20
AUG.									
17...	1000	24.5	27.0	560	7.4	8.9	129	150	56
SEP.									
19...	1600	18.0	28.0	580	9.2	8.9	121	150	24

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	587	751	771	817	799	724	866	868	490	415	489	743
2	587	753	782	839	805	756	892	850	426	417	489	700
3	671	747	782	846	795	765	874	903	386	418	489	640
4	677	751	782	854	795	689	871	915	380	410	489	638
5	555	751	777	863	805	713	871	878	372	378	498	627
6	606	769	782	854	820	723	884	876	353	338	530	608
7	684	769	827	844	861	706	871	903	329	340	525	602
8	698	718	827	844	864	681	866	879	336	379	509	602
9	703	699	820	844	849	689	850	877	323	384	511	602
10	725	699	820	819	842	661	874	854	330	422	511	602
11	730	696	807	817	840	608	852	827	347	434	511	602
12	730	731	844	799	820	539	859	840	376	442	525	602
13	733	729	837	799	820	493	871	873	378	413	580	606
14	730	790	827	808	816	431	845	924	357	398	553	592
15	671	781	844	797	791	457	850	861	334	413	555	572
16	697	761	853	797	775	481	---	816	308	417	570	546
17	708	761	853	787	775	524	859	849	318	428	570	541
18	708	761	905	802	775	559	859	797	335	433	580	578
19	715	773	958	817	777	609	850	784	335	437	615	518
20	700	767	876	815	765	667	850	730	360	423	593	518
21	551	771	874	802	736	756	852	678	331	568	574	527
22	622	790	837	797	765	777	847	606	316	465	572	536
23	670	781	803	815	740	838	836	584	347	469	613	546
24	723	781	780	808	723	838	850	539	417	462	664	561
25	732	788	782	802	718	---	871	611	438	467	638	573
26	725	761	763	797	671	864	859	542	451	474	604	573
27	733	751	777	797	671	861	871	532	442	460	615	573
28	737	775	777	793	674	864	884	511	377	459	604	573
29	735	773	777	795	703	873	859	514	374	477	582	573
30	742	781	777	797	---	873	910	541	388	522	582	584
31	748	---	820	797	---	881	---	549	---	491	751	---
MONTH	688	757	817	815	779	697	864	752	368	434	564	589
YEAR	676											

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DI-ELDRIN (UG/L)	ENDRIN (UG/L)
JAN. 18...	1000	5300	.00	.00	.0	.00	.00	.00	.01	.00
APR. 19...	1230	12800	.00	.00	.0	.00	.00	.00	.00	.00
JULY 18...	1000	17000	.00	.00	.0	.00	.00	.00	.00	.00

DATE	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	PCB (UG/L)	MALA-THION (UG/L)	PARA-THION (UG/L)	DI-AZINON (UG/L)	METHYL PARA-THION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JAN. 18...	.00	.00	.0	--	--	--	--	.00	.00	.00
APR. 19...	.00	.00	.0	.00	.00	.00	.00	.00	.00	.00
JULY 18...	.00	.00	.0	.00	.00	.01	.00	.00	.00	.00

DATE	TIME	DIS-CHARGE (CFS)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)
JAN. 18...	1000	5300	<.2	<.2	<1.0	9.3	57	2.2	<.2	<.2	<.2	<.2
APR. 19...	1230	12800	<.2	<.2	<1.0	<.2	<.2	<.2	<.2	<.2	<.2	<.2

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	2.0	1.0	0.0	0.0	0.0	4.5	10.0	18.5	20.0	22.0	17.5
2	12.0	2.0	1.0	0.0	0.0	0.0	6.5	9.0	22.0	19.0	21.0	17.5
3	7.0	2.0	0.0	0.0	0.0	0.0	4.0	8.0	22.0	18.5	20.0	17.0
4	7.5	3.0	0.0	0.0	0.0	0.0	4.5	9.5	21.5	18.0	19.0	17.5
5	8.5	1.0	0.0	0.0	0.0	0.0	6.5	10.0	21.0	20.0	20.0	16.0
6	10.0	0.0	0.0	0.0	0.0	0.0	8.5	10.0	20.0	20.5	19.5	17.5
7	12.0	0.0	0.0	0.0	0.0	0.0	9.0	10.5	20.0	19.5	20.5	15.0
8	10.0	0.0	0.0	0.0	0.0	0.0	9.5	10.0	20.0	20.0	20.0	15.0
9	9.5	0.0	0.0	0.0	0.0	0.0	10.0	8.5	19.0	21.5	20.5	17.0
10	11.0	1.0	0.0	0.0	0.0	0.0	10.0	9.0	18.5	22.0	21.5	17.5
11	11.0	2.0	0.0	0.0	0.0	0.0	10.0	9.0	19.5	21.5	23.0	16.5
12	12.0	2.5	0.0	0.0	0.0	0.0	10.0	9.5	19.0	20.0	23.0	15.0
13	10.5	3.5	0.0	0.0	0.0	0.0	9.5	10.0	18.5	21.0	24.0	15.0
14	10.5	4.0	0.0	0.0	0.0	0.0	10.0	12.5	18.0	20.0	24.0	14.5
15	9.0	4.5	0.0	0.0	0.0	0.0	10.0	14.0	18.0	19.0	24.0	15.0
16	8.0	4.0	0.0	0.0	0.0	0.5	---	16.0	18.0	20.0	23.5	15.5
17	7.0	4.0	0.0	0.0	0.0	0.5	9.0	17.5	18.0	19.0	25.0	15.5
18	6.5	3.0	0.0	0.0	0.0	1.0	8.0	19.0	20.0	19.0	23.0	15.0
19	6.0	2.5	0.0	0.0	0.0	1.0	8.0	19.0	18.0	19.0	23.0	17.0
20	6.5	3.0	0.0	0.0	0.0	2.0	8.5	17.0	17.5	17.0	23.0	16.0
21	6.5	3.5	0.0	0.0	0.0	7.0	9.0	17.5	17.5	16.0	22.0	12.0
22	6.0	3.0	0.0	0.0	0.0	7.5	10.0	18.0	16.0	18.5	21.0	12.5
23	7.0	3.0	0.0	0.0	0.0	7.5	9.0	18.0	16.0	18.0	21.0	12.0
24	8.0	2.5	0.0	0.0	0.0	7.5	9.0	17.5	18.5	19.0	20.5	12.0
25	9.0	2.0	0.0	0.0	0.0	---	10.5	17.5	20.0	20.0	20.5	12.0
26	9.0	2.0	0.0	0.0	0.0	5.5	11.0	17.0	20.0	21.0	20.0	8.0
27	8.0	2.0	0.0	0.0	0.0	4.5	10.5	16.0	19.5	22.0	21.0	8.5
28	6.0	2.0	0.0	0.0	0.0	4.5	11.0	15.5	19.0	22.0	21.5	8.0
29	4.0	1.5	0.0	0.0	0.0	4.0	10.5	15.0	19.0	23.0	22.0	8.0
30	3.0	1.0	0.0	0.0	---	4.0	11.5	16.0	19.5	23.5	22.0	9.0
31	2.0	---	0.0	0.0	---	3.5	---	17.0	---	22.0	19.5	---
MONTH	8.0	2.0	0.0	0.0	0.0	2.0	9.0	13.5	19.0	20.0	21.5	14.0
YEAR	9.0											

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM
OCT.											
03...	1645	8.0	32700	15500	1370000	--	--	88	93	100	--
15...	1410	9.0	12000	311	10100	--	--	49	70	99	100
20...	1640	7.0	25100	5890	399000	--	--	96	98	100	--
NOV.											
12...	0640	1.5	10700	176	5080	--	--	26	45	100	--
MAR.											
11...	1640	.0	36000	832	80900	--	--	54	76	99	100
16...	1750	.5	49000	3070	406000	--	--	73	87	99	100
APR.											
04...	1030	3.0	14400	288	11200	--	--	54	70	100	--
MAY											
03...	1750	10.0	14600	1150	45300	--	--	90	93	100	--
05...	1750	11.0	14200	442	16900	--	--	72	81	100	--
13...	1415	11.0	16300	598	26300	--	--	66	77	99	100
21...	1615	18.0	25400	2810	193000	--	--	82	90	100	--
22...	1750	18.5	27700	2020	151000	--	--	75	88	100	--
25...	1740	16.5	31800	2050	176000	--	--	77	88	99	100
30...	1650	18.0	21500	622	36100	--	--	74	88	100	--
JUNE											
04...	1855	21.0	40900	1900	210000	--	--	81	94	100	--
08...	1750	19.5	51200	1770	245000	--	--	70	89	100	--
12...	1820	19.5	59400	2240	359000	--	--	79	93	100	--
21...	1740	16.5	42400	1020	117000	--	--	52	75	96	100
24...	1620	20.5	39000	2390	252000	--	--	87	93	100	--
26...	1745	21.0	36600	5430	537000	--	--	93	97	100	--
27...	1745	20.5	39800	2020	217000	--	--	74	86	100	--
JULY											
12...	1000	20.0	19600	167	8840	28	36	52	67	98	100
AUG.											
09...	1045	19.5	11800	275	8760	55	62	78	91	100	--

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	BED MAT. FALL DIAM. % FINER THAN .062 MM	BED MAT. FALL DIAM. % FINER THAN .125 MM	BED MAT. FALL DIAM. % FINER THAN .250 MM	BED MAT. FALL DIAM. % FINER THAN .500 MM
JUNE							
28...	--	--	37700	1	5	72	100
AUG.							
09...	1045	19.5	11800	88	92	99	100
SEP.							
26...	1045	8.0	10000	2	38	100	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	8620	1000	23300	12300	186	6180	10700	112	3240
2	12900	3400	118000	11900	160	5140	10700	121	3500
3	29100	12100	951000	11700	160	5050	10200	130	3580
4	29800	12300	990000	12000	202	6540	8800	137	3260
5	22200	6200	372000	12000	261	8460	8400	139	3150
6	17000	2720	125000	10500	248	7030	7900	129	2750
7	14300	1500	57900	10000	249	6720	7500	102	2070
8	14200	890	34100	10300	261	7260	7000	71	1340
9	13600	820	30100	10200	260	7160	7700	45	936
10	13300	700	25100	10400	238	6680	8000	31	670
11	13100	490	17300	10500	205	5810	7000	29	548
12	11500	320	9940	10700	172	4970	6000	31	502
13	10400	290	8140	11200	169	5110	5200	31	435
14	10900	300	8830	11000	180	5350	6000	31	502
15	11900	300	9640	10900	200	5890	5200	32	449
16	12000	280	9070	10700	220	6360	4700	41	520
17	12000	250	8100	10800	227	6620	5300	88	1260
18	12500	500	16900	10600	212	6070	6000	182	2950
19	18400	2100	104000	10600	187	5350	6800	260	4770
20	24900	5570	374000	10400	156	4380	7000	283	5350
21	20900	4500	254000	10300	130	3620	6800	280	5140
22	17700	3220	154000	10200	114	3140	6500	266	4670
23	15300	1490	61600	10300	112	3110	6100	246	4050
24	15100	832	33900	10400	142	3990	5900	210	3350
25	14600	712	28100	9970	170	4580	5800	271	4240
26	14600	619	24400	10500	167	4730	5700	131	2020
27	14200	405	15500	10400	150	4210	5600	98	1480
28	13900	302	11300	10400	125	3510	5500	74	1100
29	13500	279	10200	10600	108	3090	5700	57	877
30	12700	261	8950	10600	106	3030	6200	41	686
31	12500	222	7490	--	--	--	6500	38	667
TOTAL	477620	--	3901840	322370	--	159140	212400	--	70062

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	6200	37	619	5300	16	229	16000	415	17900
2	6100	40	659	5500	18	267	17000	610	28000
3	5900	51	812	5500	21	312	18000	650	31600
4	6400	77	1330	5400	26	379	17700	690	33000
5	6700	134	2420	5400	30	437	18500	730	36500
6	7100	141	2700	5700	32	492	20000	750	40500
7	7600	138	2830	6000	36	583	23500	755	47900
8	8100	129	2820	6600	39	695	25500	770	53000
9	8600	108	2510	7200	41	797	28600	770	59500
10	9000	89	2160	8300	40	896	32000	775	67000
11	8600	89	2070	9300	40	1000	36000	820	79700
12	7500	95	1920	10000	41	1110	39000	1240	131000
13	6300	111	1890	9500	40	1030	45000	1850	225000
14	5200	151	2120	9000	40	972	49000	2310	306000
15	4500	188	2280	8800	40	950	52000	3020	424000
16	4000	158	1710	9200	40	994	49000	3160	418000
17	4500	85	1030	9900	40	1070	49700	2770	372000
18	5300	49	701	10000	41	1110	41200	2920	325000
19	6400	62	1070	10800	51	1490	37000	2900	290000
20	7400	101	2020	12000	88	2850	20600	1850	103000
21	8800	152	3610	13700	178	6580	19000	1100	56400
22	7700	200	4160	15000	260	10500	17000	810	37200
23	7200	205	3990	16000	278	12000	16100	671	29200
24	6700	161	2910	16700	270	12200	15600	558	23200
25	6400	100	1730	16800	253	11500	15600	472	19900
26	5700	59	908	16500	229	10200	14400	428	16600
27	5200	58	814	16200	216	9450	15100	400	16300
28	5000	52	702	16100	211	9170	14800	427	17100
29	6200	38	616	16000	200	8640	14600	448	17700
30	6700	21	380	--	--	--	14200	359	13800
31	7300	17	335	--	--	--	13700	297	11000
TOTAL	204100	--	55826	302400	--	107903	805400	--	3347000

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	13400	293	10600	12500	205	6920	23700	860	55000
2	13200	295	10500	13500	645	23500	27000	885	64500
3	13000	290	10200	13800	1110	41400	32200	1330	116000
4	14300	290	11200	14500	1190	46600	39300	1880	199000
5	14600	302	11900	14300	695	26800	44400	2450	294000
6	14800	308	12300	13500	297	10800	47600	2680	344000
7	14700	268	10600	13200	290	10300	49100	2180	289000
8	14500	261	10200	13200	295	10500	50400	1840	250000
9	12700	370	12700	14000	290	11000	51400	1630	226000
10	14000	298	11300	15100	540	22000	54600	2500	369000
11	14000	239	9030	16300	1310	57700	58700	3410	540000
12	13700	209	7730	16400	1180	52300	59300	2800	448000
13	13700	191	7070	16400	695	30800	57700	2160	337000
14	13600	181	6650	16900	745	34000	54300	2190	321000
15	13400	180	6510	16000	620	26800	53600	1680	243000
16	13300	182	6540	14700	520	20600	48900	1390	184000
17	13200	190	6770	14200	335	12800	43600	1070	126000
18	12900	192	6690	13700	345	12800	41500	1000	112000
19	12900	176	6130	16200	690	30200	41800	1150	130000
20	12800	221	7640	20800	1460	82000	40200	1260	137000
21	13200	290	10300	25100	2640	179000	41800	1080	122000
22	13000	240	8420	27100	2220	162000	42700	970	112000
23	12900	171	5960	29900	2080	168000	39000	1100	116000
24	12100	140	4570	31000	2190	183000	38400	2000	207000
25	12600	220	7480	31800	2030	174000	37900	3080	315000
26	12700	254	8710	30000	1890	153000	38400	4400	456000
27	12600	177	6020	27600	1360	101000	39000	2600	274000
28	12400	149	4990	26000	975	68400	37700	1450	148000
29	12200	184	6060	25100	760	51500	33900	1160	106000
30	12300	200	6640	22200	600	36000	30800	1100	91500
31	--	--	--	21300	730	42000	--	--	--
TOTAL	398700	--	251410	596300	--	1887720	1298900	--	6732000

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	28200	880	67000	11600	301	9430	9730	642	16900
2	26600	704	50600	11100	248	7430	9610	663	17200
3	27600	711	53000	11100	400	12000	9490	1220	31300
4	28200	620	47200	11500	850	26400	9460	898	22900
5	26400	381	27200	13100	1020	36100	9460	675	17200
6	25500	230	15800	15200	984	40400	9430	610	15500
7	22500	508	30900	13600	854	31400	9160	580	14300
8	20400	496	27300	12500	742	25000	9130	563	13900
9	20400	346	19100	11700	328	10400	9010	554	13500
10	20600	352	19600	11100	280	8390	9220	555	13800
11	20300	278	15200	10600	323	9240	10000	579	15600
12	19600	239	12600	10100	308	8400	10500	618	17500
13	19100	338	17400	9790	269	7110	10100	571	15600
14	18200	330	16200	9490	255	6530	10400	586	16500
15	17500	312	14700	9250	269	6720	11200	660	20000
16	17100	322	14900	9370	290	7340	11300	639	19500
17	17300	314	14700	9700	360	9430	10900	551	16200
18	17100	270	12500	10900	484	14200	10600	449	12900
19	16600	251	11200	10800	518	15100	10200	344	9470
20	16900	589	26900	11400	550	16900	9730	273	7170
21	15700	672	28500	11400	605	18600	9520	222	5710
22	16500	770	34300	10800	910	26500	9400	180	4570
23	17600	725	34500	10600	903	25800	9160	157	3880
24	18100	470	23000	10600	774	22200	9280	160	4010
25	18600	545	27400	10400	725	20400	9520	142	3650
26	17200	447	20800	10300	715	19900	9940	147	3950
27	16100	390	17000	11300	854	26100	10100	307	8370
28	15500	371	15500	12000	1030	33400	10100	369	10100
29	13800	397	14800	11300	867	26500	10400	318	8930
30	12900	463	16100	11300	765	23300	10300	233	6480
31	12300	429	14200	10400	689	19300	--	--	--
TOTAL	600400	--	760100	344300	--	569920	296350	--	386590

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 5859240
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 18229531

06334630 BOX ELDER CREEK NEAR WEBSTER, MONT.

LOCATION.--Lat 45°54'25", long 104°03'30", in NE¼ sec.30, T.2 N., R.62 E., Fallon County, 0.7 mile downstream from Horse Creek, 1.5 miles west of Montana-South Dakota State line, 2.5 miles downstream from gaging station, and 14 miles southeast of Webster.

DRAINAGE AREA.--1,092 sq mi.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
JULY												
01-13	--	39	--	9.0	20	47	26	200	5.9	342	0	350
14-22	--	26	--	7.9	30	26	26	330	6.7	407	0	490
23-31	--	145	--	9.3	20	45	20	130	5.6	174	0	320
AUG.												
01-14	--	72	--	11	120	35	16	130	5.6	171	0	270
15-31	--	25	--	11	50	33	16	230	5.6	364	0	330
SEP.												
01-30	--	5.1	--	6.5	30	27	31	340	7.2	521	12	510
WTD. AVG.	--	--	--	9.7	52	39	20	173	5.8	248	1	330
TIME WTD. AVG.	--	39	--	8.8	45	34	24	246	6.3	368	4	397
TONS PER DAY	--	--	--	1.0	0	4.2	2.1	18	.6	26	0	35
ANALYSIS OF ADDITIONAL SAMPLES												
JULY 18...	1200	9.2	20.0	7.6	30	53	31	320	7.9	509	0	540

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)
JULY 18...	1200	9.2	.020	660	20
AUG. 23...	1100	14	.030	--	--
SEP. 26...	1630	6.7	.040	--	--

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C) JULY TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	1220	959	1680
2	---	---	---	---	---	---	---	---	---	1290	874	1680
3	---	---	---	---	---	---	---	---	---	1340	1090	1640
4	---	---	---	---	---	---	---	---	---	1390	1390	1680
5	---	---	---	---	---	---	---	---	---	1320	765	1680
6	---	---	---	---	---	---	---	---	---	1300	618	1730
7	---	---	---	---	---	---	---	---	---	1290	606	1730
8	---	---	---	---	---	---	---	---	---	1310	631	1780
9	---	---	---	---	---	---	---	---	---	1360	673	1780
10	---	---	---	---	---	---	---	---	---	1440	725	1780
11	---	---	---	---	---	---	---	---	---	1540	775	1780
12	---	---	---	---	---	---	---	---	---	1560	816	1890
13	---	---	---	---	---	---	---	---	---	1570	927	1890
14	---	---	---	---	---	---	---	---	---	1650	987	1890
15	---	---	---	---	---	---	---	---	---	1650	1060	1890
16	---	---	---	---	---	---	---	---	---	1670	1130	1890
17	---	---	---	---	---	---	---	---	---	1700	1180	1890
18	---	---	---	---	---	---	---	---	---	1730	1200	1890
19	---	---	---	---	---	---	---	---	---	1750	1330	1890
20	---	---	---	---	---	---	---	---	---	1770	1330	1890
21	---	---	---	---	---	---	---	---	---	1770	1220	1960
22	---	---	---	---	---	---	---	---	---	1340	1280	1960
23	---	---	---	---	---	---	---	---	---	1440	1330	1960
24	---	---	---	---	---	---	---	---	---	1290	1390	1960
25	---	---	---	---	---	---	---	---	---	919	1330	1960
26	---	---	---	---	---	---	---	---	---	892	1420	1890
27	---	---	---	---	---	---	---	---	---	798	1530	1890
28	---	---	---	---	---	---	---	---	---	769	1650	1890
29	---	---	---	---	---	---	---	---	---	876	1610	1890
30	---	---	---	---	---	---	---	---	---	931	1650	2160
31	---	---	---	---	---	---	---	---	---	820	1630	---
MONTH	---	---	---	---	---	---	---	---	---	1350	1130	1850

06334630 BOX ELDER CREEK NEAR WEBSTER, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July to September 1972.
Water temperatures: July to September 1972.

REMARKS.--Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, JULY TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
JULY												
01-13	5.2	.4	.01	.000	812	1.10	85.5	220	0	5.8	1290	7.9
14-22	7.5	.4	.00	.000	1090	1.48	76.5	170	0	11	1600	8.0
23-31	5.5	.4	.01	.000	621	.84	243	190	52	4.1	891	7.6
AUG.												
01-14	23	.3	.24	.000	576	.78	112	150	13	4.6	906	7.5
15-31	27	.4	.25	.000	833	1.13	56.2	150	0	8.2	1320	7.9
SEP.												
01-30	12	.3	.04	.000	1200	1.63	16.5	190	0	11	1810	8.4
WTD. AVG.	13	.4	.10	.000	715	.97	--	177	22	5.7	1090	7.7
TIME WTD. AVG.	14	.4	.10	.000	915	1.24	--	179	7	8.1	1400	8.0
TONS PER DAY	1.4	.0	.01	.000	76	--	--	--	--	--	--	--
ANALYSIS OF ADDITIONAL SAMPLES												
JULY												
18...	6.0	.7	.02	.010	1220	1.66	30.3	260	0	8.6	1790	8.1

TEMPERATURE (°C) OF WATER, JULY TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	---	20.5	18.5	15.0
2	---	---	---	---	---	---	---	---	---	18.0	19.0	15.5
3	---	---	---	---	---	---	---	---	---	16.0	16.0	15.5
4	---	---	---	---	---	---	---	---	---	16.0	14.5	15.5
5	---	---	---	---	---	---	---	---	---	19.0	20.0	16.0
6	---	---	---	---	---	---	---	---	---	20.0	18.0	16.5
7	---	---	---	---	---	---	---	---	---	21.0	19.0	14.0
8	---	---	---	---	---	---	---	---	---	21.0	18.0	14.5
9	---	---	---	---	---	---	---	---	---	21.5	18.0	16.5
10	---	---	---	---	---	---	---	---	---	21.0	21.0	17.0
11	---	---	---	---	---	---	---	---	---	21.0	21.0	15.5
12	---	---	---	---	---	---	---	---	---	21.0	22.0	15.0
13	---	---	---	---	---	---	---	---	---	21.5	24.0	15.5
14	---	---	---	---	---	---	---	---	---	20.0	22.0	13.5
15	---	---	---	---	---	---	---	---	---	18.0	23.5	13.5
16	---	---	---	---	---	---	---	---	---	19.5	23.0	13.5
17	---	---	---	---	---	---	---	---	---	18.5	24.5	14.5
18	---	---	---	---	---	---	---	---	---	19.0	20.0	13.5
19	---	---	---	---	---	---	---	---	---	18.5	21.5	15.5
20	---	---	---	---	---	---	---	---	---	14.0	21.0	12.0
21	---	---	---	---	---	---	---	---	---	16.0	19.0	8.0
22	---	---	---	---	---	---	---	---	---	17.0	18.0	10.0
23	---	---	---	---	---	---	---	---	---	18.0	17.5	10.0
24	---	---	---	---	---	---	---	---	---	20.0	16.0	8.5
25	---	---	---	---	---	---	---	---	---	19.0	17.0	7.5
26	---	---	---	---	---	---	---	---	---	21.0	18.0	4.0
27	---	---	---	---	---	---	---	---	---	21.5	19.0	6.0
28	---	---	---	---	---	---	---	---	---	21.0	20.0	6.5
29	---	---	---	---	---	---	---	---	---	21.0	20.5	6.0
30	---	---	---	---	---	---	---	---	---	21.0	20.5	8.5
31	---	---	---	---	---	---	---	---	---	20.0	17.5	---
MONTH	---	---	---	---	---	---	---	---	---	19.5	19.5	12.5

KOOTENAI RIVER BASIN

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 48°59'44", long 115°10'43", in NE¼SW¼SE¼ sec.1, T.37 N., R.28 W., Lincoln County, 0.3 mile south of international boundary, in middle of old channel 1.9 miles upstream from Young Creek, and 6.4 miles north of Rexford.

PERIOD OF RECORD.--Chemical analyses: June to September 1972.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	LAKE ELEVATION ABOVE MEAN SEA LEVEL (FT)	DEPTH (FT)	BIOCHEMICAL OXYGEN DEMAND (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	TOTAL NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
JUNE											
14...	1300	2370	55	--	--	.35	--	.000	.07	.28	.010
14...	1330	2370	10	--	--	.19	--	.000	.07	.12	.020
21...	1115	2379	63	--	--	.20	--	.000	.10	.10	.12
21...	1130	2379	10	--	--	.17	--	.000	.09	.08	.080
28...	1130	2383	66	2.3	6	.64	.07	.000	.00	.64	.090
28...	1200	2383	10	1.3	1	.25	.04	.000	.02	.23	.090
JULY											
06...	1115	2388	70	--	--	.19	--	.000	.05	.14	.040
06...	1130	2388	10	--	--	.23	--	.000	.00	.23	.010
13...	1230	2400	82	--	--	.11	--	.000	.03	.07	.020
13...	1245	2400	10	--	--	.08	--	.000	.00	.08	.020
19...	1115	2403	85	--	--	.15	--	.000	.04	.11	.030
19...	1130	2403	10	--	--	.16	--	.000	.03	.13	.020
27...	1000	2404	85	1.5	4	.23	.04	.000	.05	.18	.020
27...	1015	2404	10	1.7	3	.27	.03	.000	.01	.26	.030
AUG.											
02...	1100	2402	80	--	--	.10	--	.000	.03	.07	.020
02...	1115	2402	10	--	--	.16	--	.000	.01	.15	.020
09...	1045	2400	82	--	--	.19	--	.000	.02	.17	.030
09...	1100	2400	10	--	--	.05	--	.000	.00	.05	.000
16...	1230	2400	83	--	--	.13	--	.000	.04	.09	.040
16...	1245	2400	10	--	--	.14	--	.000	.00	.14	.020
23...	1100	2402	85	--	--	.22	--	.000	.02	.20	.040
23...	1115	2402	10	--	--	.18	--	.000	.01	.17	.020
31...	1015	2404	82	1.6	0	.27	.00	.000	.02	.25	.050
31...	1030	2404	10	1.7	0	.35	.04	.000	.00	.35	.020
SEP.											
06...	1115	2404	80	--	--	.21	--	.000	.07	.14	.040
06...	1130	2404	10	--	--	.18	--	.000	.01	.17	.020
12...	1115	2404	81	--	--	.18	--	.000	.04	.14	.030
12...	1130	2404	10	--	--	.25	--	.000	.00	.25	.030
21...	1245	2394	64	--	--	.39	--	.000	.04	.35	.040
21...	1300	2394	10	--	--	.35	--	.000	.00	.35	.030
28...	1030	2384	69	1.7	--	.51	.03	.000	.03	.48	.020
28...	1045	2384	10	2.0	46	.59	.04	.000	.03	.56	.020

DATE	TIME	DEPTH (FT)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
JULY								
27...	1000	85	.00	.00	.0	.00	.00	.00
27...	1015	10	.00	.00	.0	.00	.00	.00

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE, JULY TO SEPTEMBER 1972

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
JULY	
27...	180
AUG.	
31...	290
SEPT.	
28...	110

(Carbon-14, light and dark bottle method)

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY.--Continued

REMARKS.--Samples collected in Lake Koocanusa at depths ten feet above bottom and ten feet below surface. Weekly vertical profiles for temperature, specific conductance, dissolved oxygen, turbidity and natural light penetration are filed in the Montana District Office.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
JUNE							
14...	1300	55	8.9	175	8.2	101	—
14...	1330	10	9.1	175	8.1	103	—
21...	1115	63	9.9	195	7.6	89	—
21...	1130	10	10.2	200	8.2	89	—
28...	1130	66	9.8	190	8.1	93	0
28...	1200	10	11.6	200	8.4	94	47
JULY							
06...	1115	70	10.0	200	7.7	99	—
06...	1130	10	14.0	195	8.1	87	—
13...	1230	82	11.2	175	7.4	89	—
13...	1245	10	15.5	190	7.9	89	—
19...	1115	85	11.6	180	7.9	86	—
19...	1130	10	13.9	185	8.1	83	—
27...	1000	85	12.0	200	7.4	88	680
27...	1015	10	16.5	188	7.5	82	300
AUG.							
02...	1100	80	15.8	191	8.2	91	—
02...	1115	10	19.5	191	8.2	86	—
09...	1045	82	14.9	207	8.1	91	—
09...	1100	10	20.5	193	8.8	89	—
16...	1230	83	13.5	210	7.6	89	—
16...	1245	10	20.8	200	8.1	84	—
23...	1100	85	15.8	230	8.0	79	—
23...	1115	10	20.0	200	8.5	77	—
31...	1015	82	15.4	210	7.9	82	2
31...	1030	10	20.9	200	8.4	77	14
SEP.							
06...	1115	80	15.2	240	8.1	87	—
06...	1130	10	19.2	205	8.4	80	—
12...	1115	81	15.0	245	8.2	91	—
12...	1130	10	17.7	215	8.3	82	—
21...	1245	64	15.2	225	8.3	98	—
21...	1300	10	16.0	225	8.5	86	—
28...	1030	69	10.0	240	8.2	88	28
28...	1045	10	13.9	220	8.3	88	22

DATE	DIELDRIN (UG/L)	ENDRIN (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JULY							
27...	.00	.00	.00	.00	.00	.00	.00
27...	.00	.00	.00	.00	.00	.00	.00

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
JUNE							
28...	1130	66	0	--	1	0	2
28...	1200	10	3	--	1	0	2
JULY							
27...	1000	85	0	0	1	0	1
27...	1015	10	0	0	0	0	1
AUG.							
31...	1015	82	8	0	1	0	1
31...	1030	10	10	0	0	0	1
SEP.							
28...	1030	69	0	0	1	0	1
28...	1045	10	3	0	0	0	1

RADIOCHEMICAL ANALYSES

DATE	TIME	DEPTH (FT)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)
JULY							
27...	1000	85	.4	.07	2.3	.8	1.4
27...	1015	10	.4	.06	1.4	.5	1.5

12301300 TOBACCO RIVER NEAR EUREKA, MONT.

LOCATION.--Lat 48°53'37", long 115°05'13", in NW¼SE¼SE¼ sec.9, T.36 N., R.27 W., Lincoln County, at gaging station 0.2 mile upstream from Indian Creek, 1.8 miles northwest of Eureka and 6.0 miles upstream from mouth.

DRAINAGE AREA.--440 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1970 to September 1972.
Water temperatures: November 1970 to September 1972.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.										
14...	1000	114	8.6	36	14	3.2	.3	--	4.8	.8
JAN.										
10...	1500	79	9.4	40	15	3.6	.7	217	6.0	.7
APR.										
11...	1500	472	12	37	11	2.4	.7	166	5.6	1.6
JULY										
13...	0730	662	6.5	28	9.4	1.3	.3	131	4.3	1.0
AUG.										
16...	0700	208	7.5	34	11	2.2	.5	152	4.3	.7
SEP.										
19...	0800	114	8.2	36	13	3.0	.6	160	6.8	2.3

12300110 LAKE KOOCANUSA AT INTERNATIONAL BOUNDARY.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	CYANIDE (CN) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JUNE							
28...	--	20	1	10	.0	1	20
28...	--	20	2	10	.0	2	10
JULY							
27...	--	20	2	0	.0	3	0
27...	--	20	2	0	.0	2	0
AUG.							
31...	.01	30	2	0	.5	2	0
31...	.00	20	1	10	.5	2	0
SEP.							
28...	.00	20	2	0	.2	0	10
28...	.00	10	1	20	.1	0	0

RADIOCHEMICAL ANALYSES

DATE	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
JULY							
27...	1.8	120	<.4	<.1	<.4	<.4	2
27...	1.8	110	<.4	<.1	<.4	<.4	<1

12301300 TOBACCO RIVER NEAR EUREKA, MONT.--Continued

EXTREMES.--1971-72:
Water temperatures: Maximum, 21.0°C Aug. 7-10; minimum, freezing point on many days during December to March.

Period of record:
Water temperatures: Maximum, 22.0°C Aug. 4, 7, 1971; minimum, freezing point on many days during winter periods.

REMARKS.--Recorder stopped Nov. 28 to Dec. 15. Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	COLOR (PLAT-INUM-COBALT UNITS)	CARBON DIOXIDE (CO2) (MG/L)
OCT.										
14...	.0	30	172	.23	52.9	150	--	.1	5	--
JAN.										
10...	.0	10	188	.26	40.1	160	0	.1	0	2.2
APR.										
11...	.1	20	168	.23	214	140	2	.1	20	1.1
JULY										
13...	.4	10	106	.14	189	109	1	.1	10	1.3
AUG.										
16...	.0	0	150	.20	84.2	130	6	.1	3	7.7
SEP.										
19...	.1	10	168	.23	51.7	140	12	.1	0	1.3

12301300 TOBACCO RIVER NEAR EUREKA, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TOTAL NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT. 14...	1000	114	1.5	.13	.03	.000	1.3	.16	.46	.30	.0	.00
JAN. 10...	1500	79	.35	.23	.07	.000	.05	.30	.070	.050	2.0	.00
APR. 11...	1500	472	.14	.07	.06	.000	.01	.13	.050	.000	.0	.00
JULY 13...	0730	662	.23	.21	.02	.000	.00	.23	.090	.010	4.0	.00
AUG. 16...	0700	208	.10	.08	.02	.000	.00	.10	.020	.000	---	.00
SEP. 19...	0800	114	.14	.10	.01	.000	.03	.11	.020	.010	---	.00

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT. 14...	1000	114	100	0	--	10	0	0	0	1	0
JAN. 10...	1500	79	0	1	0	0	1	0	0	2	0
APR. 11...	1500	472	0	3	0	0	1	0	0	1	2
JULY 13...	0730	662	2	0	0	0	0	0	0	1	1

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.0	6.0	2.0	1.5	---	---	0.0	0.0	0.0	0.0	1.0	0.0
2	9.0	6.0	2.0	1.5	---	---	0.0	0.0	0.0	0.0	1.0	0.5
3	10.0	8.0	2.5	2.0	---	---	0.0	0.0	0.0	0.0	1.0	0.0
4	11.0	9.0	4.0	2.5	---	---	0.0	0.0	0.0	0.0	1.0	0.0
5	12.0	9.0	3.0	1.0	---	---	0.0	0.0	0.0	0.0	1.0	0.0
6	11.5	8.0	1.0	1.0	---	---	0.0	0.0	0.0	0.0	1.5	0.5
7	11.5	8.5	1.0	1.0	---	---	0.0	0.0	0.0	0.0	1.0	0.0
8	10.5	8.0	1.5	1.0	---	---	0.0	0.0	0.0	0.0	2.0	0.0
9	10.0	7.5	2.0	1.0	---	---	0.0	0.0	0.0	0.0	2.5	1.0
10	9.5	7.0	3.0	2.0	---	---	0.0	0.0	0.0	0.0	4.0	2.0
11	9.0	7.0	4.0	3.0	---	---	0.0	0.0	0.0	0.0	3.0	1.5
12	8.5	6.0	4.0	3.5	---	---	0.0	0.0	0.0	0.0	3.0	1.5
13	8.5	7.5	4.5	4.0	---	---	0.0	0.0	0.0	0.0	2.5	2.0
14	7.5	4.5	4.0	3.5	---	---	0.0	0.0	0.0	0.0	2.0	1.5
15	6.5	4.5	4.0	3.5	---	---	0.0	0.0	0.0	0.0	3.0	1.5
16	5.0	3.0	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0
17	4.5	2.0	3.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	3.5	1.0
18	5.0	3.5	2.0	1.5	0.0	0.0	0.0	0.0	0.5	0.0	3.0	1.5
19	5.5	4.5	2.5	2.0	0.0	0.0	0.0	0.0	1.0	0.5	2.5	2.0
20	5.5	4.5	3.5	2.5	0.0	0.0	0.0	0.0	1.0	0.5	2.5	2.0
21	6.0	4.5	4.5	3.5	0.0	0.0	0.0	0.0	1.0	0.5	3.0	1.5
22	5.5	4.0	4.5	3.0	0.0	0.0	0.0	0.0	1.0	0.5	4.0	2.0
23	6.0	5.0	3.0	1.0	0.0	0.0	0.0	0.0	1.0	0.5	4.0	3.5
24	6.5	6.0	2.5	2.0	0.0	0.0	0.0	0.0	1.0	0.5	4.0	2.5
25	6.0	5.0	3.0	2.5	0.0	0.0	0.0	0.0	1.0	0.5	3.0	2.0
26	6.0	5.0	3.0	2.5	0.0	0.0	0.0	0.0	1.0	0.5	2.5	1.5
27	5.0	2.0	3.0	3.0	0.0	0.0	0.0	0.0	1.0	0.5	3.0	2.0
28	2.0	1.0	---	---	0.0	0.0	0.0	0.0	1.0	0.5	3.5	1.5
29	1.0	1.0	---	---	0.0	0.0	0.0	0.0	1.5	1.0	4.0	1.5
30	1.0	1.0	---	---	0.0	0.0	0.0	0.0	---	---	5.0	2.0
31	1.5	1.0	---	---	0.0	0.0	0.0	0.0	---	---	6.0	3.0
MONTH	12.0	1.0	4.5	1.0	---	---	0.0	0.0	1.5	0.0	6.0	0.0

12301300 TOBACCO RIVER NEAR EUREKA, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	TURBIDITY (JTU)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)
OCT.								
14...	1000	5.0	.5	1	295	12.4	8.1	146
JAN.								
10...	1500	.0	-3.5	1	320	13.0	8.2	162
APR.								
11...	1500	4.5	8.0	4	260	11.6	8.4	135
JULY								
13...	0730	9.5	15.0	15	215	10.4	8.2	107
AUG.								
16...	0700	14.0	13.0	3	245	8.6	7.5	125
SEP.								
19...	0800	9.5	10.0	1	280	9.6	8.3	131

DATE	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED LITHIUM (LI) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED MOLYBDENUM (MO) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	DISSOLVED STRONTIUM (SR) (UG/L)	DISSOLVED VANADIUM (V) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.											
14...	30	0	10	0	.1	4	0	0	100	.0	10
JAN.											
10...	20	5	0	120	.1	0	4	1	100	.0	20
APR.											
11...	30	5	0	20	.2	9	4	0	80	.4	20
JULY											
13...	20	2	3	0	.1	0	2	0	60	.2	0

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.5	4.0	8.5	3.0	12.0	10.0	15.0	10.5	17.5	13.5	15.5	11.0
2	5.0	3.0	8.0	5.0	12.0	9.5	13.0	10.0	17.0	13.5	16.0	11.0
3	5.0	1.5	8.5	5.0	11.5	9.5	15.5	10.0	18.0	12.0	16.0	11.0
4	4.0	2.0	8.5	5.5	11.5	9.0	16.5	11.0	19.0	12.5	16.5	11.5
5	4.5	3.0	7.5	6.0	12.5	9.0	---	---	19.5	13.5	15.0	11.5
6	6.0	4.0	7.0	5.5	12.5	9.0	---	---	20.0	14.0	13.5	11.5
7	6.5	4.5	8.5	5.0	12.0	10.0	---	---	21.0	15.5	13.0	10.0
8	4.5	3.0	7.5	6.5	11.0	10.0	15.0	12.0	21.0	15.5	13.0	10.5
9	4.5	2.5	7.0	6.0	10.5	10.0	13.0	11.0	21.0	16.0	13.5	11.0
10	4.5	2.0	8.0	6.0	12.0	9.5	12.5	9.5	21.0	15.5	12.5	9.0
11	5.0	3.0	8.0	6.0	11.5	9.5	11.5	10.0	19.5	14.5	11.5	8.5
12	4.5	3.0	9.0	7.5	10.0	9.0	11.0	10.0	19.0	15.5	11.5	10.0
13	5.0	3.0	9.5	8.5	10.0	8.5	12.0	9.5	18.5	14.5	11.5	9.0
14	4.5	3.5	9.5	9.0	12.0	9.0	13.5	10.0	18.0	14.5	13.0	9.5
15	7.0	4.0	9.5	9.0	13.5	9.5	14.5	10.0	18.0	14.0	13.0	10.0
16	6.5	4.0	9.5	9.5	13.0	10.5	13.0	10.5	18.0	13.5	12.0	10.0
17	4.0	3.0	10.0	9.5	12.5	10.0	14.0	9.5	17.5	13.0	12.0	10.0
18	5.5	2.5	9.5	9.0	13.0	9.0	13.0	10.0	17.5	12.0	11.5	9.5
19	7.0	3.0	10.0	9.5	12.0	9.0	12.0	9.0	17.5	13.0	12.0	10.0
20	8.5	4.5	10.0	9.5	11.5	9.0	11.0	9.0	19.0	14.0	11.0	9.0
21	7.0	5.5	9.5	9.0	11.0	9.5	11.0	10.0	17.0	13.5	10.0	9.5
22	7.0	3.5	9.0	9.0	11.5	8.5	11.5	10.5	16.0	13.0	10.0	8.5
23	8.0	3.0	9.0	9.0	11.5	9.5	14.5	9.5	17.5	12.5	9.5	8.0
24	7.0	4.5	9.0	8.0	11.0	8.0	14.5	11.5	17.0	12.5	9.0	7.0
25	8.0	5.0	9.0	8.0	11.0	9.0	17.0	11.5	18.0	13.0	8.0	7.0
26	9.5	5.0	9.5	8.5	10.0	8.5	17.5	11.5	19.0	15.5	8.0	6.5
27	10.5	5.5	12.0	9.0	10.0	9.0	18.0	12.5	19.5	14.0	7.0	6.0
28	10.5	6.0	13.0	9.5	14.5	9.0	18.5	12.5	19.5	14.0	7.0	5.5
29	8.0	6.0	12.5	10.0	15.0	10.5	18.5	12.5	19.5	14.0	7.5	5.0
30	6.5	4.0	13.0	10.0	15.0	11.0	18.5	12.5	18.0	14.0	8.5	6.0
31	---	---	12.0	10.0	---	---	18.5	13.5	16.0	12.0	---	---
MONTH	10.5	1.5	13.0	3.0	15.0	8.0	18.5	9.0	21.0	12.0	16.5	5.0
YEAR	21.0	0.0										

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.

LOCATION.--Lat 48°52'28", long 115°13'37", in SE¼NE¼NW¼ sec.21, T.36 N., R.28 W., Lincoln County, at former gaging station site at bridge on State Highway 37, 300 ft downstream from Sullivan Creek, 1.1 miles southwest of Rexford, 3.5 miles downstream from Tobacco River, and at mile 260.5.

DRAINAGE AREA.--8,420 sq mi, approximately.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.										
14...	1200	4730	5.8	40	12	4.1	.5	--	37	3.9
NOV.										
11...	1000	4130	6.0	43	13	4.5	.8	153	51	4.3
DEC.										
16...	1230	2500	6.9	49	14	5.2	1.1	--	42	7.1
JAN.										
10...	1030	2250	7.0	47	14	5.2	.7	167	43	4.3
FEB.										
07...	1030	2800	7.2	47	14	5.4	.7	169	50	5.9
MAR.										
14...	0900	4580	7.7	44	12	4.2	.8	155	36	3.6
APR.										
11...	1030	6180	6.7	42	12	3.2	.6	153	28	2.7
MAY										
04...	1030	8100	6.1	39	11	2.5	.6	143	27	2.4

DATE	TIME	DIS-CHARGE (CFS)	TOTAL NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO-PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT.												
14...	1200	4730	.29	.13	.03	.000	.10	.16	.18	.010	5.0	.00
NOV.												
11...	1000	4130	.46	.00	.36	.000	.17	.29	--	.080	.0	.00
DEC.												
16...	1230	2500	.45	.12	.14	.000	.19	.26	.22	.17	--	.00
JAN.												
10...	1030	2250	.41	.17	.06	.000	.16	.25	.22	.15	1.0	.00
FEB.												
07...	1030	2800	.69	.41	.06	.000	.22	.47	.19	.12	--	.00
MAR.												
14...	0900	4580	.59	.24	.15	.000	.20	.39	.16	.060	.5	.00
APR.												
11...	1030	6180	.18	.01	.08	.000	.09	.09	.070	.010	.0	.00
MAY												
04...	1030	8100	.52	.34	.05	.000	.13	.39	.13	.000	1.0	.00

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: June 1967 to September 1972.
Water temperatures: October 1967 to September 1971.
Sediment records: October 1967 to September 1971.

REMARKS.--Backwater from Libby Dam reached sampling site in May. From June to September samples collected in Lake Koocanusa at depths ten feet above bottom and ten feet below surface. Vertical profiles for temperature, specific conductance, dissolved oxygen, turbidity and natural light penetration are filed in the Montana District Office. This station is alternate sampling site for Lake Koocanusa below Pinkham Creek near Rexford, Mont. (station 12301600).

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	COLOR (PLAT-INUM-COBALT UNITS)	CARBON DIOXIDE (CO2) (MG/L)
OCT.										
14...	.9	0	182	.25	2320	150	--	.1	5	--
NOV.										
11...	1.8	0	226	.31	2520	160	34	.2	5	1.9
DEC.										
16...	1.0	20	238	.32	1610	180	--	.2	7	--
JAN.										
10...	1.2	10	212	.29	1290	170	38	.2	5	2.1
FEB.										
07...	1.1	20	224	.30	1690	170	36	.2	3	--
MAR.										
14...	1.2	20	178	.23	2100	160	32	.1	0	1.2
APR.										
11...	.7	4	184	.25	3070	150	29	.1	8	1.9
MAY										
04...	.6	20	178	.24	3890	140	25	.1	20	.9

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
OCT.								
14...	1200	7.0	7.5	4	315	11.6	8.1	118
NOV.								
11...	1000	1.5	4.5	3	340	12.8	8.1	134
DEC.								
16...	1230	.0	-15.0	2	380	13.4	8.2	152
JAN.								
10...	1030	.0	-6.0	1	360	13.0	8.1	132
FEB.								
07...	1030	.0	2.0	2	375	11.8	7.8	130
MAR.								
14...	0900	3.0	1.5	15	335	12.0	8.3	125
APR.								
11...	1030	4.5	3.0	6	295	11.6	8.1	123
MAY								
04...	1030	8.0	10.0	15	295	11.0	8.4	117

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE, JULY TO SEPTEMBER 1972

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
JULY	
26...	130

(Carbon-14, light and dark bottle method)

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT.											
14...	1200	4730	100	0	300	10	0	0	1	1	0
NOV.											
11...	1000	4130	0	1	100	0	0	0	0	0	0
DEC.											
16...	1230	2500	0	8	0	0	0	0	0	0	4
JAN.											
10...	1030	2250	100	5	0	0	1	0	0	1	0
FEB.											
07...	1030	2800	0	0	0	0	0	0	0	0	1
MAR.											
14...	0900	4580	0	2	0	0	0	0	0	0	0
APR.											
11...	1030	6180	0	0	0	0	1	0	0	2	3
MAY											
04...	1030	8100	0	0	200	0	1	0	0	0	1

DATE	TIME	LAKE ELE-VATION ABOVE MEAN SEA LEVEL (FT)	DEPTH (FT)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	CHEM-ICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)
JUNE											
07...	1400	2342	69	--	--	--	--	.000	.12	--	.060
07...	1430	2342	10	--	--	--	--	.010	.12	--	.050
21...	0915	2379	116	--	--	.25	--	.000	.12	.13	.060
21...	0930	2379	10	--	--	.69	--	.000	.27	.43	.050
JULY											
06...	0845	2388	122	--	--	.14	--	.000	.05	.09	.030
06...	0900	2388	10	--	--	.11	--	.000	.00	.11	.010
26...	1315	2404	125	.6	2	.13	.03	.000	.01	.12	.020
26...	1330	2404	10	.4	2	.12	.03	.000	.02	.10	.020
SEP.											
12...	0915	2404	126	--	--	.25	--	.000	.11	.14	.040
12...	0930	2404	10	--	--	.15	--	.000	.00	.15	.030
21...	1045	2394	125	--	--	.36	--	.000	.05	.32	.030
21...	1100	2394	10	--	--	.32	--	.000	.00	.32	.030

DATE	TIME	DEPTH (FT)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
JULY								
26...	1315	125	.00	.00	.0	.00	.00	.00
26...	1330	10	.00	.00	.0	.00	.00	.00

DATE	TIME	DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
JULY							
26...	1315	125	0	100	0	0	1
26...	1330	10	1	0	0	0	1

RADIOCHEMICAL ANALYSES

DATE	TIME	DEPTH (FT)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)
JULY							
26...	1315	125	<.4	.07	1.6	.5	1.5
26...	1330	10	.4	.04	<1.1	<.4	1.3

12301500 KOOTENAI RIVER NEAR REXFORD, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.											
14...	20	0	10	10	.1	6	3	0	220	.0	10
NOV.											
11...	30	0	0	30	.2	0	0	0	190	.0	50
DEC.											
16...	10	8	0	30	.2	2	15	0	280	.4	20
JAN.											
10...	20	5	0	20	.2	0	5	0	280	.5	30
FEB.											
07...	30	0	0	79	.3	2	4	0	240	.0	30
MAR.											
14...	30	2	10	58	.3	0	3	1	50	.6	20
APR.											
11...	20	3	0	40	.2	--	5	0	140	.1	20
MAY											
04...	20	2	0	17	.1	0	3	1	130	.2	20

FIELD DETERMINATIONS

DATE	TIME	DEPTH (FT)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)
JUNE							
07...	1400	69	11.0	185	7.9	102	--
07...	1430	10	14.0	190	7.8	98	--
21...	0915	116	9.1	190	7.9	94	--
21...	0930	10	12.3	195	8.4	89	--
JULY							
06...	0845	122	9.2	200	7.6	94	--
06...	0900	10	13.3	190	8.2	91	--
26...	1315	125	10.4	187	7.5	87	15
26...	1330	10	15.0	186	8.1	84	49
SEP.							
12...	0915	126	12.8	205	7.8	83	--
12...	0930	10	17.4	215	8.4	83	--
21...	1045	125	13.2	245	8.0	93	--
21...	1100	10	16.0	215	8.3	85	--

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JULY							
26...	.00	.00	.00	.00	.00	.00	.00
26...	.00	.00	.00	.00	.00	.00	.00

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JULY						
26...	70	2	0	.0	4	0
26...	80	2	0	.0	3	10

RADIOCHEMICAL ANALYSES

DATE	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
JULY						
26...	1.9	120	<.4	<.1	<.4	2
26...	1.7	110	<.4	<.1	<.4	1

12301600 LAKE KOOCANUSA BELOW PINKHAM CREEK, NEAR REXFORD, MONT.

LOCATION.--Lat 48°49'37", long 115°15'58", in E½SW¼NE¼ sec.6, T.35 N., R.28 W., Lincoln County, in middle of old channel 0.6 mile downstream from Pinkham Creek, and 6.5 miles northeast of Rexford.

PERIOD OF RECORD.--Chemical analyses: June to September 1972.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	LAKE ELEVATION ABOVE MEAN SEA LEVEL (FT)	DEPTH (FT)	BIOCHEMICAL OXYGEN DEMAND (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	TOTAL NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
JUNE											
14...	1030	2370	122	--	--	.34	--	.000	.08	.26	.020
14...	1100	2370	10	--	--	.35	--	.010	.06	.28	.020
28...	0845	2383	131	1.1	4	.27	.04	.000	.05	.22	.000
28...	0915	2383	10	1.0	4	.22	.04	.000	.04	.18	.000
JULY											
13...	1000	2400	161	--	--	.12	--	.000	.05	.07	.020
13...	1015	2400	10	--	--	.09	--	.000	.00	.09	.020
19...	0800	2403	162	--	--	.22	--	.000	.07	.15	.040
19...	0815	2403	10	--	--	.14	--	.000	.01	.13	.020
AUG.											
02...	0845	2402	155	--	--	.11	--	.000	.03	.07	.030
02...	0900	2402	10	--	--	.03	--	.000	.00	.03	.020
09...	0830	2400	155	--	--	.16	--	.000	.04	.12	.010
09...	0845	2400	10	--	--	.22	--	.000	.01	.21	.000
16...	0945	2400	156	--	--	.25	--	.000	.04	.21	.020
16...	1000	2400	10	--	--	.14	--	.000	.00	.14	.010
23...	0815	2402	153	--	--	.24	--	.000	.03	.21	.040
23...	0830	2402	10	--	--	.12	--	.000	.00	.12	.030
30...	1015	2404	160	1.0	1	.17	.09	.010	.03	.13	.040
30...	1030	2404	10	1.0	0	.33	.03	.000	.02	.08	.020
SEP.											
06...	0915	2404	162	--	--	.57	--	.010	.11	.45	.040
06...	0930	2404	10	--	--	.22	--	.000	.00	.22	.020
27...	1045	2385	137	1.2	0	.37	.07	.000	.07	.30	.020
27...	1100	2385	10	1.3	6	.23	.04	.000	.03	.20	.050

DATE	TIME	DEPTH (FT)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BARIUM (BA) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)
JUNE							
28...	0845	131	2	--	2	0	2
28...	0915	10	0	--	0	0	1
AUG.							
30...	1015	160	2	0	1	0	1
30...	1030	10	2	0	0	0	1
SEP.							
27...	1045	137	10	0	0	0	1
27...	1100	10	1	0	0	0	1

12301600 LAKE KOOCANUSA BELOW PINKHAM CREEK, NEAR REXFORD, MONT.--Continued

REMARKS.--Samples collected in Lake Koocanusa at depths ten feet above bottom and ten feet below surface. Weekly vertical profiles for temperature, specific conductance, dissolved oxygen, turbidity and natural light penetration are filed in the Montana District Office. When station was inaccessible, Kootenai River near Rexford, Mont. (station 12301500) was used as alternate site.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
JUNE							
14...	1030	122	10.1	170	8.0	91	—
14...	1100	10	10.2	170	8.0	90	—
28...	0845	131	9.8	195	7.3	89	0
28...	0915	10	12.1	190	7.7	88	40
JULY							
13...	1000	141	9.6	180	8.1	90	—
13...	1015	10	15.5	185	8.7	86	—
19...	0800	162	9.7	180	7.7	93	—
19...	0815	10	15.8	190	8.4	85	—
AUG.							
02...	0845	155	10.5	186	7.0	86	—
02...	0900	10	17.1	188	7.7	82	—
09...	0830	155	10.6	192	7.6	89	—
09...	0845	10	19.0	190	8.1	83	—
16...	0945	156	11.0	200	7.2	85	—
16...	1000	10	19.0	200	7.3	75	—
23...	0815	153	11.0	205	7.8	82	—
23...	0830	10	19.2	200	8.5	77	—
30...	1015	160	11.4	230	7.9	85	100
30...	1030	10	20.2	200	8.5	77	270
SEP.							
06...	0915	162	12.2	205	7.8	85	—
06...	0930	10	18.0	210	8.7	80	—
27...	1045	137	13.7	245	7.5	93	57
27...	1100	10	15.0	220	8.1	86	58

DATE	CYANIDE (CN) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
JUNE							
28...	--	20	2	20	.0	2	0
28...	--	20	1	10	.0	2	7
AUG.							
30...	.00	50	2	60	.5	2	10
30...	.02	20	2	10	.5	2	0
SEP.							
27...	.00	30	2	10	.2	0	10
27...	.00	30	2	0	.1	0	0

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE, JULY TO SEPTEMBER 1972

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
AUG.	
30...	150
SEPT.	
27...	130

(Carbon-14, light and dark bottle method)

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MONT.

LOCATION.--Lat 48°35'06", long 115°13'52", in NW¼NE¼NW¼ sec.33, T.33 N., R.28 W., Lincoln County, in middle of old channel at Tenmile Creek, and 20.1 miles northeast of Libby.

PERIOD OF RECORD.--Chemical analyses: June to September 1972.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	LAKE ELEVATION ABOVE MEAN SEA LEVEL (FT)	DEPTH (FT)	BIOCHEMICAL OXYGEN DEMAND (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	TOTAL NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)
JUNE											
06...	1300	2338	152	--	--	.33	--	.000	.13	.20	.040
06...	1330	2338	10	--	--	.24	--	.000	.02	.22	.040
13...	1130	2367	181	--	--	.16	--	.000	.11	.05	.070
13...	1200	2367	10	--	--	.14	--	.000	.02	.12	.060
20...	1330	2377	191	--	--	.30	--	.000	.07	.23	.050
20...	1345	2377	10	--	--	.24	--	.000	.00	.24	.020
27...	1315	2382	190	1.7	10	.23	.10	.000	.00	.23	.040
27...	1400	2382	10	1.3	9	.23	.10	.000	.00	.23	.040
JULY											
05...	1230	2387	202	--	--	.33	--	.000	.06	.27	.020
05...	1245	2387	10	--	--	.24	--	.000	.00	.24	.010
12...	1300	2399	205	--	--	.17	--	.000	.02	.15	.050
12...	1315	2399	10	--	--	.25	--	.000	.05	.20	.030
19...	1415	2403	218	--	--	.35	--	.000	.10	.25	.030
19...	1430	2403	10	--	--	.15	--	.000	.01	.14	.030
25...	1245	2404	220	1.0	5	.16	.02	.000	.02	.14	.030
25...	1315	2404	10	.8	9	.14	.01	.000	.00	.14	.010
AUG.											
01...	1115	2402	220	--	--	.16	--	.010	.04	.09	.040
01...	1130	2402	10	--	--	.05	--	.000	.00	.05	.000
08...	1015	2400	221	--	--	.17	--	.000	.04	.11	.040
08...	1030	2400	10	--	--	.37	--	.000	.00	.37	.020
15...	1030	2400	214	--	--	.19	--	.000	.08	.11	.030
15...	1045	2400	10	--	--	.27	--	.000	.00	.27	.020
22...	1015	2401	210	--	--	.30	--	.010	.03	.26	.030
22...	1030	2401	10	--	--	.23	--	.010	.00	.22	.010
29...	1015	2404	212	.9	4	.21	.04	.000	.04	.17	.040
29...	1030	2404	10	.6	3	.22	.02	.000	.00	.22	.010
SEP.											
05...	1015	2404	214	--	--	.29	--	.000	.11	.18	.040
05...	1030	2404	10	--	--	.21	--	.000	.00	.21	.010
11...	1000	2404	218	--	--	.31	--	.000	.12	.19	.030
11...	1015	2404	10	--	--	.23	--	.000	.00	.23	.010
18...	1015	2397	214	--	--	.18	--	.000	.05	.13	.040
18...	1030	2397	10	--	--	.14	--	.000	.00	.14	.030
26...	1015	2387	201	.9	0	.19	.01	.000	.03	.16	.030
26...	1030	2387	10	1.0	0	.49	.01	.000	.00	.49	.020

DATE	TIME	DEPTH (FT)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BARIUM (BA) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)
JUNE							
27...	1315	190	0	--	0	0	2
27...	1400	10	1	--	0	0	1
JULY							
25...	1245	220	0	0	0	0	2
25...	1315	10	0	0	0	0	1
AUG.							
29...	1015	212	0	0	1	0	2
29...	1030	10	3	0	1	0	2
SEP.							
26...	1015	201	1	0	1	0	2
26...	1030	10	3	0	1	0	3

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MONT.--Continued

REMARKS.--Samples collected in Lake Koocanusa at depths ten feet above bottom and ten feet below surface. Weekly vertical profiles for temperature, specific conductance, dissolved oxygen, turbidity and natural light penetration are filed in the Montana District Office.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	DEPTH (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
JUNE							
06...	1300	152	10.0	200	7.9	91	—
06...	1330	10	12.5	200	8.4	86	—
13...	1130	181	10.1	175	8.0	97	—
13...	1200	10	13.4	175	8.3	85	—
20...	1330	191	9.5	190	7.8	98	—
20...	1345	10	14.7	200	8.6	83	—
27...	1315	190	9.0	195	7.9	93	—
27...	1400	10	12.5	195	7.5	85	0
JULY							53
05...	1230	202	9.2	195	7.7	94	—
05...	1245	10	14.2	195	8.4	87	—
12...	1300	205	9.0	175	7.5	92	—
12...	1315	10	15.1	180	8.5	86	—
19...	1415	218	9.3	180	7.7	91	—
19...	1430	10	15.5	190	8.2	87	—
25...	1245	220	9.0	178	8.1	88	0
25...	1315	10	15.5	180	8.4	85	0
AUG.							
01...	1115	220	9.6	197	7.4	90	—
01...	1130	10	17.2	184	7.7	82	—
08...	1015	221	9.5	186	7.6	90	—
08...	1030	10	18.0	186	8.5	82	—
15...	1030	214	9.9	190	7.5	87	—
15...	1045	10	19.1	195	8.2	87	—
22...	1015	210	10.0	195	7.7	80	—
22...	1030	10	20.3	195	8.5	80	—
29...	1015	212	10.2	195	7.3	83	370
29...	1030	10	20.2	195	8.2	77	2
SEP.							
05...	1015	214	10.7	190	7.7	80	—
05...	1030	10	19.2	195	8.8	78	—
11...	1000	218	10.5	190	7.7	81	—
11...	1015	10	18.0	195	8.8	78	—
18...	1015	214	11.0	200	7.7	82	—
18...	1030	10	17.0	195	8.4	78	—
26...	1015	201	11.0	200	7.4	82	80
26...	1030	10	15.7	200	8.1	80	25

DATE	CYANIDE (CN) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
JUNE							
27...	—	20	2	10	.0	5	10
27...	—	30	2	0	.1	3	0
JULY							
25...	—	30	3	10	.1	3	0
25...	—	40	0	0	.0	3	0
AUG.							
29...	.00	50	2	50	.5	3	0
29...	.00	10	2	0	.5	2	0
SEP.							
26...	.01	30	1	20	.1	0	10
26...	.00	50	3	0	.1	0	0

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE, JULY TO SEPTEMBER 1972

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
JULY	
25...	200
AUG.	
29...	210
SEPT.	
26...	190

(Carbon-14, light and dark bottle method)

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	DEPTH (FT)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
JULY								
25...	1245	220	.00	.00	.0	.00	.00	.00
25...	1315	10	.00	.00	.0	.00	.00	.00

RADIOCHEMICAL ANALYSES

DATE	TIME	DEPTH (FT)	DIS-SOLVED NATURAL URANIUM (U) (UG/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)
JULY							
25...	1245	220	.4	.04	2.4	.8	1.8
25...	1315	10	<.4	.05	1.9	.6	1.9

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MONT.

LOCATION.--Lat 48°24'43", long 115°18'33", in SW¼NW¼NE¼ sec.33, T.31 N., R.29 W., Lincoln County, in middle of old channel 0.2 mile upstream from Libby Dam, and 11.6 miles east of Libby.

PERIOD OF RECORD.--Chemical analyses: June to September 1972

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	LAKE ELEVATION ABOVE MEAN SEA LEVEL (FT)	DEPTH (FT)	BIO-CHEMICAL OXYGEN DEMAND (MG/L)	CHEMICAL OXYGEN DEMAND (HIGH LEVEL) (MG/L)	TOTAL NITROGEN (N) (MG/L)	DIS-SOLVED AMMONIA NITROGEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITROGEN (N) (MG/L)	DIS-SOLVED PHOS-PHORUS (P) (MG/L)
JUNE											
05...	1400	2334	215	--	--	.55	--	.000	.16	.39	.030
05...	1500	2334	10	--	--	.38	--	.000	.13	.25	.060
13...	0900	2367	248	--	--	.34	--	.000	.19	.15	.070
13...	0930	2367	10	--	--	.28	--	.000	.13	.15	.070
20...	1020	2377	258	--	--	.48	--	.000	.15	.33	.070
20...	1040	2377	10	--	--	.31	--	.000	.00	.31	.040
27...	1015	2382	260	.8	7	.36	.11	.000	.11	.25	.050
27...	1100	2382	10	1.3	12	.24	.14	.000	.00	.24	.040
JULY											
05...	0945	2387	258	--	--	.22	--	.030	.08	.14	.030
05...	1000	2387	10	--	--	.22	--	.000	.01	.21	.010
12...	0945	2399	275	--	--	.13	--	.000	.00	.13	.060
12...	1000	2399	10	--	--	.14	--	.000	.00	.14	.010
18...	0930	2403	275	--	--	.38	--	.000	.07	.31	.050
18...	0945	2403	10	--	--	.17	--	.000	.00	.17	.020
24...	1245	2404	290	1.2	9	.18	.05	.000	.00	.18	.030
24...	1330	2404	10	1.3	6	.27	.03	.000	.00	.27	.030
AUG.											
01...	1445	2402	265	--	--	.23	--	.000	.06	.17	.010
01...	1500	2402	10	--	--	.09	--	.000	.00	.09	.000
08...	1330	2400	277	--	--	.42	--	.000	.11	.31	.040
08...	1345	2400	10	--	--	.41	--	.000	.02	.39	.030
15...	1330	2400	287	--	--	.15	--	.010	.05	.09	.030
15...	1345	2400	10	--	--	.17	--	.000	.00	.17	.010
22...	1315	2401	269	--	--	.27	--	.010	.05	.21	.040
22...	1330	2401	10	--	--	.24	--	.000	.00	.24	.020
28...	1045	2404	274	.5	2	.12	.01	.000	.00	.12	.010
28...	1100	2404	10	.5	2	.04	.02	.000	.01	.03	.010
SEP.											
05...	1315	2404	271	--	--	.36	--	.000	.09	.27	.050
05...	1330	2404	10	--	--	.14	--	.000	.00	.14	.020
11...	1245	2404	291	--	--	.45	--	.000	.10	.35	.060
11...	1300	2404	10	--	--	.20	--	.000	.00	.20	.020
18...	1315	2396	280	--	--	.16	--	.000	.05	.11	.060
18...	1330	2396	10	--	--	.14	--	.000	.00	.14	.030
25...	1230	2388	259	3.9	8	.19	.07	.000	.06	.13	.040
25...	1245	2388	10	2.8	8	.30	.07	.000	.00	.30	.040

12301830 LAKE KOOCANUSA AT TENMILE CREEK, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JULY							
25...	.00	.00	.00	.00	.00	.00	.00
25...	.00	.00	.00	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES

DATE	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
JULY							
25...	2.3	100	<.4	<.1	<.4	<.4	<1
25...	2.4	100	<.4	<.1	<.4	<.4	<1

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MONT.--Continued

REMARKS.--Samples collected in Lake Koocanusa at depths ten feet above bottom and ten feet below surface. Weekly vertical profiles for temperature, specific conductance, dissolved oxygen, turbidity and natural light penetration are filed in the Montana District Office.

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	DEPTH (FT)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)
JUNE							
05...	1400	215	9.0	215	7.6	88	--
05...	1500	10	12.7	230	7.5	85	--
13...	0900	248	8.3	190	7.9	90	--
13...	0930	10	18.5	190	7.8	81	--
20...	1029	258	8.9	200	7.8	92	--
20...	1040	10	13.9	200	8.4	85	--
27...	1015	260	8.3	190	7.6	90	0
27...	1100	10	11.4	190	7.5	84	13
JULY							
05...	0945	258	9.0	200	7.7	94	--
05...	1000	10	16.0	185	8.6	88	--
12...	0945	275	9.0	170	7.6	93	--
12...	1000	10	13.9	185	7.9	85	--
19...	0930	275	9.2	170	7.5	86	--
19...	0945	10	17.7	180	8.0	83	--
26...	1245	290	9.0	175	7.9	85	0
26...	1330	10	18.0	185	7.4	82	0
AUG.							
01...	1445	265	9.2	183	7.1	85	--
01...	1500	10	15.1	184	7.8	82	--
08...	1330	277	9.1	183	7.6	89	--
08...	1345	10	18.2	184	8.5	84	--
15...	1330	287	9.4	190	7.3	83	--
15...	1345	10	23.9	190	7.9	80	--
22...	1315	269	9.3	190	7.8	80	--
22...	1330	10	21.0	190	8.8	74	--
28...	1045	274	9.3	195	8.3	75	280
28...	1100	10	21.4	190	8.4	77	400
SEP.							
05...	1315	271	9.4	195	7.7	86	--
05...	1330	10	20.0	195	8.0	76	--
11...	1245	291	9.1	205	7.4	89	--
11...	1300	10	17.4	195	8.4	76	--
18...	1315	280	10.5	195	7.8	80	--
18...	1330	10	16.4	190	8.3	77	--
25...	1230	259	10.5	190	7.7	82	60
25...	1245	15	15.2	195	8.2	76	220

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	TIME	DEPTH (FT)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
JUNE							
27...	1015	260	1	--	1	0	1
27...	1100	10	1	--	0	0	0
JULY							
24...	1245	290	2	0	1	0	2
24...	1330	10	0	0	1	0	1
AUG.							
28...	1045	274	0	0	1	0	3
28...	1100	10	15	0	0	0	2
SEP.							
25...	1230	259	13	0	1	0	3
25...	1245	10	11	0	1	0	1

DATE	TIME	DEPTH (FT)	ALDRIN (UG/L)	LINDANE (UG/L)	CHLOR-DANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
JULY								
24...	1245	290	.00	.00	.0	.00	.00	.00
24...	1330	10	.00	.00	.0	.00	.00	.00

RADIOCHEMICAL ANALYSES

DATE	TIME	DEPTH (FT)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)
JULY							
24...	1245	290	.05	2.1	.7	1.8	2.2
24...	1330	10	.06	1.4	.5	1.8	2.3

12301919 LAKE KOOCANUSA AT FOREBAY, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, JUNE TO SEPTEMBER 1972

DATE	CYANIDE (CN) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JUNE							
27...	--	20	2	0	.0	3	7
27...	--	50	1	0	.0	4	0
JULY							
24...	--	30	0	0	.0	3	0
24...	--	40	1	0	.0	2	0
AUG.							
28...	.00	20	2	0	.3	2	0
28...	.00	20	4	0	.2	2	0
SEP.							
25...	.00	30	1	80	.1	0	0
25...	.00	30	3	0	2.6	0	10

DATE	DI-ELDRIN (UG/L)	ENDRIN (UG/L)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR EPOXIDE (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JULY							
24...	.00	.00	.00	.00	.00	.00	.00
24...	.00	.00	.00	.00	.00	.00	.00

RADIOCHEMICAL ANALYSES

DATE	TOTAL FILT-RABLE RESIDUE (MG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)
JULY						
24...	110	.6	.2	.7	.8	9
24...	110	<.4	<.1	<.4	<.4	<1

PRIMARY PRODUCTIVITY IN THE EUPHOTIC ZONE, JULY TO SEPTEMBER 1972

DATE	PRIMARY PRODUCTIVITY (MG C/M^2/DAY)
JULY	
24...	83
AUG.	
28...	150
SEPT.	
25...	180

(Carbon-14, light and dark bottle method)

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.

LOCATION.--Lat 48°22'00", long 115°19'20", in SE¼NE¼ sec.17, T.30 N., R.29 W., Lincoln County, on downstream side of bridge 3.5 miles downstream from Libby Dam, 11 miles east of Libby, and at mile 218.2.

DRAINAGE AREA.--9,047 sq mi.

PERIOD OF RECORD.--Chemical analyses: June 1967 to September 1972.
Water temperatures: October 1967 to September 1972.
Sediment records: October 1967 to September 1972.

EXTREMES.--1971-72:
Water temperatures: Maximum, 14.5°C Aug. 27, 28; minimum, freezing point on many days during October to March.
Sediment concentrations: Maximum daily, 46 mg/l May 22; minimum daily, 1 mg/l Jan. 8, 28, Aug. 19.
Sediment discharge: Maximum daily, 4,170 tons June 18; minimum daily, 5.4 tons Jan. 28.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.										
19...	1100	5210	5.5	41	13	4.2	.4	--	35	4.0
NOV.										
12...	1200	4530	5.7	44	13	4.4	.9	--	33	5.2
DEC.										
17...	1030	2770	7.0	49	14	5.1	2.8	--	42	4.8
JAN.										
05...	1200	2940	7.0	45	14	4.4	.9	--	41	4.5
FEB.										
08...	1600	2790	7.3	48	15	5.3	.7	167	43	6.0
MAR.										
13...	1200	9050	8.9	38	11	6.6	.9	140	33	4.6
20...	1330	7250	8.4	34	9.5	3.3	1.0	--	25	2.4
27...	1030	2170	9.0	35	9.5	3.1	.8	129	26	2.9
APR.										
04...	1230	4270	8.0	37	10	3.3	.9	135	27	2.7
10...	1230	7730	8.1	38	11	3.2	.9	135	28	2.9
17...	1100	7330	8.0	40	12	3.8	1.1	137	28	3.2
24...	1230	1850	7.5	39	11	2.9	.8	139	26	2.4
MAY										
01...	1000	9550	7.0	41	12	3.5	.9	147	28	2.3
08...	1015	15900	6.3	40	11	3.1	.9	141	27	1.8
15...	1100	21000	6.9	34	9.9	2.3	1.2	122	21	1.7
22...	1030	27100	6.6	29	7.0	1.2	.6	107	13	1.1
30...	1300	23600	6.1	28	7.1	1.5	.4	108	11	.9
JUNE										
05...	1030	27600	5.7	31	7.1	7.7	.5	110	16	2.3
12...	0830	29900	5.4	28	7.0	2.2	.9	106	11	.8
19...	1030	32400	5.0	27	6.6	.4	.6	107	9.6	.7
26...	0930	32100	5.0	28	6.8	.7	.7	101	10	1.7
JULY										
03...	0900	27000	4.7	27	6.4	.8	.8	110	11	.7
10...	1100	3140	4.7	27	6.4	1.2	.5	109	11	1.1
17...	0815	24100	4.8	27	6.5	1.1	.6	104	11	1.0
25...	0800	26600	4.8	28	6.4	1.1	.5	105	15	1.0
31...	1100	30900	4.6	28	6.7	1.1	.6	101	11	1.0
AUG.										
07...	0915	15600	5.0	28	6.7	1.1	.6	103	12	3.0
14...	1030	13400	4.5	27	7.5	1.2	.5	100	19	1.1
21...	0830	4230	4.2	29	6.9	1.5	.5	98	12	1.2
28...	1445	4670	4.0	27	7.3	1.4	.4	92	15	1.6
SEP.										
08...	1030	7200	4.5	29	6.8	1.4	.5	93	14	1.9
15...	1130	30900	4.6	30	7.2	1.3	.6	93	12	1.5
22...	0830	31400	4.6	27	7.0	1.5	.5	95	13	1.9
29...	1100	30400	4.4	29	7.3	1.5	.5	97	14	1.9

DATE	TIME	DIS-CHARGE (CFS)	TOTAL NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT.												
15...	1100	5210	.24	.15	.00	.000	.10	.15	.16	.010	1.0	.00
NOV.												
12...	1200	4530	.57	.23	.15	.000	.19	.38	.040	.080	1.0	.00
DEC.												
17...	1030	2770	.47	.12	.13	.000	.22	.25	.27	.20	--	.00
JAN.												
05...	1200	2940	.51	.16	.11	.000	.24	.27	.16	.13	3.0	.00
FEB.												
08...	1600	2790	.92	.28	.05	.000	.59	.33	.18	.12	3.0	.03

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

EXTREMES.--Continued

Period of record:
Water temperatures: Maximum, 21.5°C Aug. 6, 1970; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 1,200 mg/l June 5, 1968; minimum daily, 1 mg/l Apr. 13,1968, Oct. 15, 1969, Jan. 8, 28, Aug. 19, 1972.
Sediment discharge: Maximum daily, 200,000 tons June 5, 1968; minimum daily, 5.4 tons Jan. 28, 1972.

REMARKS.--Recorder removed Nov. 2 to Apr. 17. Thermograph records furnished by Corps of Engineers, U.S. Army. Water discharge computed by subtracting the discharge for Fisher River near Libby, Mont. (station 12302055), from that of Kootenai River at Libby, Mont. (station 12303000). Flow affected by ice Jan. 4-7, 13-21, Jan. 25 to Feb. 15. Flow regulated by Lake Koocanusa since Mar. 21, 1972.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	COLOR (PLAT-INUM-COBALT UNITS)	CARBON DIOXIDE (CO2) (MG/L)
OCT.										
15...	.9	10	192	.26	2700	160	--	.1	5	--
NOV.										
12...	.9	10	202	.27	2470	160	--	.2	5	--
DEC.										
17...	1.0	20	224	.30	1680	180	--	.2	5	--
JAN.										
05...	1.0	10	216	.29	1720	170	--	.1	0	--
FEB.										
08...	1.1	10	220	.30	1660	180	45	.2	3	--
MAR.										
13...	.9	8	178	.24	2430	140	25	.2	5	1.8
20...	.6	0	152	.21	2980	120	--	.1	40	2.4
27...	.5	20	158	.21	926	130	21	.1	40	2.6
APR.										
04...	.6	10	172	.23	1980	130	23	.1	20	2.7
10...	.6	40	190	.26	3970	140	29	.1	10	2.2
17...	.7	20	168	.23	3330	150	37	.1	20	3.5
24...	.5	0	170	.23	849	140	29	.1	5	1.8
MAY										
01...	.5	10	184	.25	4740	150	31	.1	10	1.9
08...	.6	10	182	.25	7620	150	30	.1	6	1.1
15...	.6	20	154	.21	8730	130	26	.1	20	1.6
22...	.2	10	138	.19	10100	100	13	.1	40	3.4
30...	.2	10	124	.17	7900	99	11	.1	20	1.7
JUNE										
05...	1.9	30	130	.18	9690	110	16	.3	20	1.1
12...	.1	30	120	.16	9690	99	12	.1	40	1.7
19...	.2	9	124	.17	10800	95	7	.0	60	1.7
26...	.2	0	104	.14	9010	98	15	.0	40	5.1
JULY										
03...	.3	10	120	.16	8750	94	4	.0	40	7.0
10...	.7	20	124	.17	1050	94	4	.1	40	3.5
17...	.2	10	126	.17	8200	94	9	.1	40	3.3
25...	.2	10	120	.16	8620	96	10	.0	20	6.7
31...	.2	10	106	.14	8840	97	15	.0	20	4.1
AUG.										
07...	.2	10	132	.18	5560	97	11	.0	5	5.3
14...	.3	0	138	.19	4990	98	16	.1	5	6.4
21...	.3	10	126	.17	1440	100	20	.1	5	3.1
28...	.2	0	124	.17	1560	97	22	.1	2	.6
SEP.										
08...	.3	0	108	.15	2100	100	24	.1	0	1.9
15...	.2	10	122	.17	10200	100	28	.1	2	1.5
22...	.3	10	120	.16	10200	96	18	.1	2	1.5
29...	.2	20	104	.14	8540	100	24	.1	0	2.5

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT.											
15...	1100	5210	200	0	400	0	1	0	0	2	1
NOV.											
12...	1200	4530	0	0	100	0	0	0	0	0	0
DEC.											
17...	1030	2770	0	7	0	0	0	0	0	1	0
JAN.											
05...	1200	2940	0	1	0	0	0	2	0	2	0
FEB.											
08...	1600	2790	100	9	0	0	0	0	0	9	1

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TOTAL NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
MAR.												
13...	1200	5050	.76	.21	.07	.000	.48	.28	.14	.11	2.0	.00
20...	1330	7250	1.1	.24	.07	.000	.79	.31	.11	.010	1.0	.00
27...	1030	2170	.46	.21	.08	.000	.17	.29	.12	.010	2.5	.00
APR.												
04...	1230	4270	.35	.16	.06	.000	.13	.22	.090	.010	1.0	.00
10...	1230	7730	.20	.04	.07	.000	.09	.11	.070	.000	1.0	.00
17...	1100	7330	.42	.08	.06	.000	.28	.14	.080	.000	.5	.00
24...	1230	1850	.22	.05	.09	.000	.08	.14	.060	.030	.0	.00
MAY												
01...	1000	9550	.53	.07	.02	.000	.44	.09	.090	.020	2.0	.00
08...	1015	15500	.11	.06	.05	.000	.00	.11	.070	.000	.0	.00
15...	1100	21000	.28	.15	.02	.000	.11	.17	.11	.030	1.0	.00
22...	1030	27100	.36	.09	.10	.000	.17	.19	.19	.020	2.0	.01
30...	1300	23600	.28	.02	.09	.000	.17	.11	.10	.020	1.0	.00
JUNE												
05...	1030	27600	.17	.00	.11	.000	.13	.04	.050	.000	3.0	.00
12...	0830	29900	.32	.05	.10	.000	.17	.15	.13	.020	.0	.00
19...	1030	32400	.22	.07	.02	.000	.13	.09	.11	.010	3.0	.00
26...	0930	32100	.26	.03	.13	.000	.10	.16	.15	.020	1.0	.00
JULY												
03...	0900	27000	.29	.08	.12	.000	.09	.20	.040	.030	.0	.00
10...	1100	3140	.18	.04	.06	.000	.08	.10	.12	.010	1.0	.00
17...	0815	24100	.10	.01	.07	.000	.02	.08	.080	.010	.0	.00
25...	0800	26600	.15	.11	.01	.000	.03	.12	.050	.010	2.0	.00
31...	1100	30900	.27	.21	.03	.000	.03	.24	.050	.020	.0	.00
AUG.												
07...	0915	15600	.88	.15	.03	.000	.70	.18	.030	.010	.0	.00
14...	1030	13400	.08	.03	.01	.000	.04	.04	.070	.010	.0	.00
21...	0830	4230	.07	.02	.02	.000	.03	.04	.050	.030	.0	.00
28...	1445	4670	.20	.18	.01	.000	.01	.19	.030	.020	.0	.00
SEP.												
08...	1030	7200	.18	.13	.01	.000	.04	.14	.030	.010	2.5	.00
15...	1130	30900	.22	.17	.01	.000	.04	.18	.040	.040	1.0	.00
22...	0830	31400	.37	.21	.01	.000	.15	.22	.050	.010	1.0	.00
29...	1100	30400	.18	.16	.01	.000	.01	.17	.050	.010	.0	.00

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
OCT.								
15...	1100	7.0	6.0	3	315	12.0	7.8	116
NOV.								
12...	1200	2.5	4.0	2	340	14.0	7.7	116
DEC.								
17...	1030	.0	7.0	3	360	14.6	7.9	142
JAN.								
05...	1200	.0	-3.0	2	355	14.4	7.9	134
FEB.								
08...	1600	.0	2.0	2	370	13.8	7.9	135

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
MAR.											
13...	1200	5050	100	8	0	0	1	0	0	0	2
20...	1330	7250	100	1	0	0	0	0	0	0	1
27...	1030	2170	0	6	0	0	0	0	0	0	7
APR.											
04...	1230	4270	0	0	7	0	0	0	0	0	0
10...	1230	7730	100	6	0	0	1	0	0	3	2
17...	1100	7330	0	0	100	0	0	0	0	0	1
24...	1230	1850	0	0	0	0	0	0	0	1	2
MAY											
01...	1000	9550	0	0	0	0	1	0	0	0	1
08...	1015	15500	0	0	0	0	1	0	0	0	1
15...	1100	21000	0	3	0	0	0	0	0	1	2
22...	1030	27100	20	10	0	0	0	0	0	0	1
30...	1300	23600	20	0	0	0	0	0	0	0	0
JUNE											
05...	1030	27600	20	0	0	0	0	0	0	0	0
12...	0830	29900	30	0	0	0	1	0	0	1	1
19...	1030	32400	0	2	0	0	1	0	0	2	1
26...	0930	32100	60	0	0	10	0	0	0	10	1
JULY											
03...	0900	27000	30	10	0	0	2	0	0	0	2
10...	1100	3140	30	1	0	0	0	0	0	0	1
17...	0815	24100	2	1	0	0	0	0	0	0	1
25...	0800	24600	20	0	0	0	0	0	0	0	1
31...	1100	30900	20	1	0	0	1	0	0	1	3
AUG.											
07...	0915	15600	10	0	0	0	1	0	0	0	2
14...	1030	13400	0	2	0	0	1	0	0	0	1
21...	0830	4230	20	5	0	0	0	0	0	0	1
28...	1445	4670	10	0	0	0	0	0	0	1	2
SEP.											
08...	1030	7200	20	0	0	0	1	0	0	0	3
15...	1130	30900	10	1	0	0	0	0	0	0	0
22...	0830	31400	10	1	0	0	1	0	0	1	0
29...	1100	30400	10	0	0	0	0	0	0	1	3

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
MAR.								
13...	1200	3.5	4.0	10	305	14.0	8.1	115
20...	1330	5.0	13.0	25	265	13.8	7.9	99
27...	1030	5.0	.0	15	240	13.2	7.9	106
APR.								
04...	1230	5.5	2.0	15	280	13.4	7.9	107
10...	1230	5.5	4.0	8	275	14.6	8.0	105
17...	1100	6.5	8.5	10	305	14.8	7.8	112
24...	1230	7.5	13.0	6	295	15.0	8.1	113
MAY								
01...	1000	7.5	11.0	2	295	14.6	8.1	116
08...	1015	9.5	11.0	3	320	13.4	8.3	116
15...	1100	9.5	19.5	8	260	14.2	8.1	100
22...	1030	9.5	10.0	35	210	13.8	7.7	88
30...	1300	9.5	27.0	25	200	14.0	8.0	89
JUNE								
05...	1030	9.6	24.5	25	205	14.2	8.2	90
12...	0830	9.7	9.0	40	195	14.0	8.0	87
19...	1030	10.3	13.0	50	200	13.4	8.0	88
26...	0930	10.5	11.5	35	195	13.4	7.5	83
JULY								
03...	0900	9.7	12.0	25	195	13.6	7.4	90
10...	1100	10.0	18.5	20	200	13.4	7.7	89
17...	0815	9.8	12.5	20	190	13.6	7.7	85
25...	0800	10.5	13.0	10	190	13.0	7.4	86
31...	1100	10.8	24.0	10	200	13.2	7.6	83
AUG.								
07...	0915	10.7	22.5	8	195	13.6	7.5	86
14...	1030	11.0	21.5	6	195	13.4	7.4	82
21...	0830	10.9	17.0	4	195	13.4	7.7	80
28...	1445	12.1	23.0	4	195	15.6	8.4	75
SEP.								
08...	1030	10.7	16.0	2	195	13.4	7.9	76
15...	1130	11.8	14.0	2	190	12.8	8.0	76
22...	0830	12.3	2.5	5	195	12.4	8.0	78
29...	1100	12.4	1.5	1	200	12.6	7.8	80

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.										
15...	1100	5210	1	2	1	80	7	—	—	30
NOV.										
12...	1200	4530	<1	<1	4	70	3	30	<.5	40
DEC.										
17...	1030	2770	<1	<1	3	80	1	<10	<.5	20
JAN.										
05...	1200	2940	<1	2	<1	80	<1	<10	<.5	20
FEB.										
08...	1600	2790	<1	9	2	40	2	10	<.5	20
MAR.										
13...	1200	5050	1	0	50	260	12	40	—	50
20...	1330	7250	1	1	9	350	12	60	.1	40
27...	1030	2170	1	0	19	620	14	60	.1	60
APR.										
04...	1230	4270	2	0	40	650	28	30	.2	90
10...	1230	7730	1	3	20	410	18	40	.1	80
17...	1100	7330	1	1	20	380	9	20	.2	40
24...	1230	1850	1	1	8	220	12	30	.2	90
MAY										
01...	1000	9550	1	0	8	170	9	20	.0	60
08...	1015	15500	1	1	4	700	6	30	.2	120
15...	1100	21000	0	1	6	440	9	50	.0	90
22...	1030	27100	1	0	14	1200	12	50	.0	320
30...	1300	23600	1	2	5	850	6	60	.2	50
JUNE										
05...	1030	27600	0	0	6	530	7	40	.1	70
12...	0830	29900	2	1	10	1500	8	60	.1	90
19...	1030	32400	1	2	10	1600	16	60	.0	90
26...	0930	32100	2	11	40	1100	12	60	.1	180
JULY										
03...	0900	27000	2	0	15	780	13	50	.0	90
10...	1100	3140	1	0	9	730	18	30	.1	150
17...	0815	24100	1	0	4	450	7	50	.0	40
25...	0800	26600	1	1	5	310	4	30	.0	30
31...	1100	30900	2	1	11	190	6	20	.2	30
AUG.										
07...	0915	15600	1	0	40	170	6	20	.2	30
14...	1030	13400	1	0	10	90	5	40	.3	50
21...	0830	4230	0	0	5	100	7	20	.1	130
28...	1445	4670	1	1	7	120	4	10	.3	50
SEP.										
08...	1030	7200	1	2	10	160	8	30	.4	50
15...	1130	30900	0	1	3	120	2	30	.3	20
22...	0830	31400	1	1	5	200	5	20	.2	10
29...	1100	30400	1	1	4	40	4	20	.1	30

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.											
15...	50	2	10	20	.0	8	4	0	210	.0	20
NOV.											
12...	10	0	0	30	.1	0	0	0	190	.0	40
DEC.											
17...	20	1	0	--	.3	1	0	0	360	.8	10
JAN.											
05...	10	0	10	8	.3	0	1	0	220	.1	20
FEB.											
08...	20	2	0	10	.4	5	2	1	290	.0	20
MAR.											
13...	40	1	17	30	--	2	4	0	180	.2	20
20...	20	0	0	10	.1	0	5	0	160	.6	20
27...	20	2	0	40	.1	0	4	0	120	1.0	20
APR.											
04...	20	0	0	10	.1	0	4	0	80	2.0	30
10...	50	4	0	30	.1	2	7	2	140	.4	20
17...	40	2	0	20	.2	9	1	0	160	.1	20
24...	40	1	0	0	.2	2	3	0	150	.0	20
MAY											
01...	20	2	0	10	.0	0	6	0	170	.0	20
08...	30	2	0	0	.2	1	2	1	140	.3	20
15...	50	2	0	0	.0	2	4	0	150	.5	8
22...	20	2	0	10	.0	3	2	0	90	.4	20
30...	30	0	0	10	.2	0	0	0	110	.1	20
JUNE											
05...	40	0	0	10	.1	1	0	0	110	.5	60
12...	40	3	0	0	.0	0	2	0	0	.4	0
19...	70	4	0	0	.0	0	4	0	130	.7	10
26...	30	2	0	0	.0	1	0	0	110	.3	0
JULY											
03...	40	3	0	0	.0	0	3	0	90	.9	30
10...	40	1	0	10	.1	0	4	0	90	.4	0
17...	30	3	0	30	.0	0	6	0	110	.1	0
25...	20	1	0	0	.0	0	3	0	80	.0	0
31...	30	3	0	0	.2	0	3	0	110	.6	10
AUG.											
07...	60	0	10	0	.2	1	3	0	100	.0	0
14...	40	0	0	0	.3	1	4	0	50	.6	0
21...	20	0	0	10	.0	0	2	1	80	.0	20
28...	20	0	10	0	.2	0	2	0	50	.2	0
SEP.											
08...	40	4	0	10	.4	1	4	0	90	.0	10
15...	30	2	0	10	.2	0	3	1	120	.0	0
22...	10	2	0	0	.0	1	2	0	120	.0	0
29...	30	1	0	0	.1	0	8	0	150	.0	10

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	8.5	0.5	0.0	---	---	---	---	---	---	---	---
2	9.5	8.5	---	---	---	---	---	---	---	---	---	---
3	10.0	9.0	---	---	---	---	---	---	---	---	---	---
4	11.0	9.5	---	---	---	---	---	---	---	---	---	---
5	12.0	10.5	---	---	---	---	---	---	---	---	---	---
6	11.5	11.0	---	---	---	---	---	---	---	---	---	---
7	11.5	11.0	---	---	---	---	---	---	---	---	---	---
8	11.5	11.0	---	---	---	---	---	---	---	---	---	---
9	11.5	10.5	---	---	---	---	---	---	---	---	---	---
10	11.5	10.5	---	---	---	---	---	---	---	---	---	---
11	11.0	10.0	---	---	---	---	---	---	---	---	---	---
12	10.5	9.0	---	---	---	---	---	---	---	---	---	---
13	9.5	9.0	---	---	---	---	---	---	---	---	---	---
14	9.5	8.0	---	---	---	---	---	---	---	---	---	---
15	8.5	7.0	---	---	---	---	---	---	---	---	---	---
16	8.0	6.0	---	---	---	---	---	---	---	---	---	---
17	6.5	5.0	---	---	---	---	---	---	---	---	---	---
18	5.5	4.5	---	---	---	---	---	---	---	---	---	---
19	5.0	4.5	---	---	---	---	---	---	---	---	---	---
20	6.0	4.5	---	---	---	---	---	---	---	---	---	---
21	6.0	5.0	---	---	---	---	---	---	---	---	---	---
22	6.0	5.0	---	---	---	---	---	---	---	---	---	---
23	5.5	4.5	---	---	---	---	---	---	---	---	---	---
24	6.0	5.0	---	---	---	---	---	---	---	---	---	---
25	6.0	5.5	---	---	---	---	---	---	---	---	---	---
26	6.0	5.5	---	---	---	---	---	---	---	---	---	---
27	6.0	4.0	---	---	---	---	---	---	---	---	---	---
28	4.5	1.5	---	---	---	---	---	---	---	---	---	---
29	2.0	0.5	---	---	---	---	---	---	---	---	---	---
30	1.0	0.0	---	---	---	---	---	---	---	---	---	---
31	0.5	0.0	---	---	---	---	---	---	---	---	---	---
MONTH	12.0	0.0	---	---	---	---	---	---	---	---	---	---

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(ONCE-DAILY MEASUREMENT)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	2.0	0.0	0.0	0.0	4.5	---	---	---	---	---
2	---	0.5	2.0	0.0	0.0	0.0	4.0	---	---	---	---	---
3	---	0.5	0.0	0.0	0.0	0.0	5.5	---	---	---	---	---
4	---	---	0.0	0.0	0.0	0.0	4.0	---	---	---	---	---
5	---	1.0	1.0	0.0	0.0	0.0	4.5	---	---	---	---	---
6	---	0.5	0.0	0.0	0.0	0.0	4.5	---	---	---	---	---
7	---	0.0	0.0	0.0	0.0	0.0	4.0	---	---	---	---	---
8	---	0.0	0.0	0.0	0.0	0.0	4.0	---	---	---	---	---
9	---	0.0	0.5	0.0	0.0	0.0	4.5	---	---	---	---	---
10	---	---	0.0	0.0	0.0	0.0	5.0	---	---	---	---	---
11	---	1.5	0.0	0.0	0.0	0.0	5.0	---	---	---	---	---
12	---	2.0	0.0	0.0	0.0	0.0	5.0	---	---	---	---	---
13	---	3.0	0.0	0.0	0.0	2.0	5.5	---	---	---	---	---
14	---	3.0	0.0	0.0	0.0	2.5	5.5	---	---	---	---	---
15	---	---	---	0.0	0.0	3.0	5.5	---	---	---	---	---
16	---	3.0	0.0	0.0	0.0	3.0	5.5	---	---	---	---	---
17	---	2.0	0.5	0.0	0.0	3.5	6.0	---	---	---	---	---
18	---	2.0	0.0	0.0	0.0	4.5	---	---	---	---	---	---
19	---	2.0	0.0	0.0	0.0	5.0	---	---	---	---	---	---
20	---	2.5	0.0	0.0	0.0	4.0	---	---	---	---	---	---
21	---	3.0	0.0	0.0	0.0	4.0	---	---	---	---	---	---
22	---	2.5	0.0	0.0	0.0	4.0	---	---	---	---	---	---
23	---	2.0	0.0	0.0	0.0	4.5	---	---	---	---	---	---
24	---	1.5	0.0	0.0	0.0	4.0	---	---	---	---	---	---
25	---	3.0	0.0	0.0	0.0	4.0	---	---	---	---	---	---
26	---	2.0	0.0	0.0	0.0	4.0	---	---	---	---	---	---
27	---	3.0	0.0	0.0	0.0	4.0	---	---	---	---	---	---
28	---	2.0	0.0	0.0	0.0	3.5	---	---	---	---	---	---
29	---	2.0	0.0	0.0	0.0	4.0	---	---	---	---	---	---
30	---	3.0	0.0	0.0	---	4.0	---	---	---	---	---	---
31	---	---	0.0	0.0	---	4.5	---	---	---	---	---	---
MONTH	---	2.0	0.0	0.0	0.0	2.5	---	---	---	---	---	---

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	9.0	8.0	9.5	9.0	10.5	10.0	11.5	11.0	12.0	11.5
2	---	---	9.0	8.5	9.5	9.5	10.5	10.0	11.5	11.0	12.0	12.0
3	---	---	9.5	9.0	10.0	9.5	10.5	10.0	11.5	11.0	12.0	11.5
4	---	---	10.5	9.5	10.0	9.5	10.5	10.0	11.5	11.0	13.0	12.0
5	---	---	11.0	10.5	10.0	9.5	10.5	10.0	11.5	11.0	12.0	12.0
6	---	---	10.5	10.5	10.0	9.5	10.5	10.5	11.5	11.5	12.0	12.0
7	---	---	10.5	10.5	10.0	10.0	---	---	11.5	11.5	12.0	12.0
8	---	---	10.5	10.5	10.0	10.0	---	---	11.5	11.0	12.0	12.0
9	---	---	10.5	10.0	10.0	10.0	---	---	11.5	11.0	12.0	12.0
10	---	---	10.0	9.5	10.5	10.0	---	---	11.5	11.5	12.0	12.0
11	---	---	10.0	9.0	10.0	10.0	---	---	11.5	11.5	12.0	12.0
12	---	---	10.0	9.0	10.0	10.0	---	---	11.5	11.5	12.0	12.0
13	---	---	10.0	9.0	10.5	10.0	---	---	11.5	11.5	13.0	12.0
14	---	---	10.0	9.0	11.0	10.0	11.0	10.5	12.0	11.5	13.0	13.0
15	---	---	10.0	9.0	10.5	10.0	11.0	10.5	12.0	11.5	13.0	13.0
16	---	---	11.0	9.5	10.5	10.0	11.0	10.5	12.0	11.5	13.5	13.0
17	---	---	11.5	11.0	10.5	10.5	10.5	10.0	12.0	11.5	13.5	13.0
18	8.0	6.5	11.0	10.5	10.5	10.0	11.0	10.5	13.0	11.5	13.5	13.0
19	8.5	7.0	11.0	10.5	10.5	10.0	11.0	10.5	13.0	11.5	13.5	13.0
20	8.0	6.5	11.0	10.5	10.5	10.0	10.5	10.5	13.0	12.0	13.5	13.0
21	8.0	6.5	10.5	10.0	10.5	10.0	10.5	10.5	13.0	12.0	14.0	13.5
22	8.0	6.5	10.0	9.5	10.5	10.0	11.0	10.5	12.0	11.5	13.5	13.5
23	8.0	6.5	9.5	9.0	10.0	10.0	11.0	10.5	12.0	11.5	13.5	13.5
24	8.5	7.0	9.5	9.0	10.5	10.0	11.0	10.5	13.0	11.5	14.0	13.5
25	8.5	8.0	9.0	9.0	10.0	10.0	11.0	10.5	13.0	11.5	14.0	13.5
26	8.5	7.0	9.5	9.0	10.0	10.0	11.5	11.0	13.0	11.5	14.0	14.0
27	9.5	7.0	10.0	9.5	10.0	10.0	11.5	11.0	13.0	11.5	14.5	14.0
28	8.5	8.0	10.0	9.0	10.5	10.0	11.0	10.5	13.0	12.0	14.5	14.0
29	8.5	8.0	9.5	9.0	10.5	10.0	11.5	11.0	13.0	12.0	14.0	14.0
30	8.5	8.0	9.5	9.0	10.5	10.0	11.5	11.0	12.0	12.0	14.0	14.0
31	---	---	9.5	9.0	---	---	11.0	11.0	12.0	11.5	---	---
MONTH	---	---	11.5	8.0	11.0	9.0	---	---	13.0	11.0	14.5	11.5
YEAR	14.5	0.0										

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	4900	12	159	3900	5	53	3400	10	92
2	4900	9	119	4000	3	32	3300	8	71
3	4800	11	143	4000	7	76	3200	7	60
4	4700	8	102	4100	11	122	3000	9	73
5	4600	8	99	4400	7	83	2900	4	31
6	4700	8	102	4300	6	70	2800	7	53
7	4900	8	106	4000	4	43	2800	11	83
8	5100	8	110	3800	7	72	2700	15	109
9	5200	10	140	3700	5	50	2300	26	161
10	5200	9	126	3900	5	53	2400	11	71
11	5100	7	96	4100	11	122	2500	8	54
12	5000	9	122	4400	5	59	2300	7	43
13	4900	6	79	4400	7	83	2200	12	71
14	4900	4	53	4400	6	71	2200	13	59
15	5100	7	96	4400	6	71	2800	7	53
16	5200	6	84	4300	6	70	2700	7	51
17	5100	5	69	4200	4	45	2600	13	91
18	4900	3	40	4100	5	55	3000	6	49
19	4700	4	51	4000	6	65	2800	4	30
20	4600	3	37	3900	10	105	3000	8	65
21	4700	4	51	3900	7	74	3000	7	57
22	4700	7	89	3900	5	53	3000	7	57
23	4600	6	75	3900	5	53	3200	7	60
24	4500	5	61	3800	14	144	3200	4	35
25	4500	3	36	3800	17	174	3000	4	32
26	4500	5	61	3700	7	70	3000	5	41
27	4500	5	61	3600	7	68	2700	4	29
28	4600	4	50	3600	5	49	2600	5	35
29	4400	7	83	3500	5	47	2500	8	54
30	4100	5	55	3500	6	57	2400	7	45
31	4000	6	65	--	--	--	2500	5	34
TOTAL	147600	--	2620	119500	--	2189	86000	--	1849

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2500	2	14	2400	3	19	4400	16	190
2	2600	2	14	2600	2	14	4500	12	146
3	2800	3	23	2800	3	23	4400	8	95
4	3000	5	41	3000	2	16	4200	6	68
5	2900	7	55	3100	3	25	4000	8	86
6	2700	5	36	3000	2	16	4200	8	91
7	2600	3	21	2900	4	31	4200	7	79
8	2600	1	7.0	2800	4	30	4200	11	125
9	2600	5	35	2700	3	22	4200	8	91
10	2600	5	35	2600	4	28	4100	10	111
11	2500	4	27	2500	4	27	4200	18	204
12	2300	3	19	2500	4	27	4400	21	249
13	2200	3	18	2700	4	29	4600	15	186
14	2100	2	11	2900	5	39	4700	19	241
15	2100	2	11	3000	4	32	5200	21	295
16	2100	3	17	3200	5	43	5300	27	386
17	2200	4	24	3500	6	57	5800	25	407
18	2300	2	12	3500	4	38	6000	33	535
19	2300	5	31	3300	6	53	6300	31	527
20	2400	2	13	3000	5	41	6600	29	517
21	2900	4	31	3400	5	46	4700	32	406
22	3500	5	47	3500	5	47	2000	33	178
23	3400	3	28	3500	4	38	2100	33	170
24	3100	3	25	3300	3	27	2100	25	142
25	2600	2	14	3100	4	33	2200	24	143
26	2500	4	27	3100	3	25	2200	19	113
27	2300	2	12	3100	4	33	2200	17	101
28	2000	1	5.4	3700	8	80	2200	19	113
29	1900	5	26	3900	18	190	2200	20	119
30	2000	2	11	--	--	--	2600	30	211
31	2200	3	18	--	--	--	2600	33	232
TOTAL	77800	--	708.4	88600	--	1129	122600	--	6557

12301933 KOOTENAI RIVER BELOW LIBBY DAM, NEAR LIBBY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	2200	40	238	8600	7	163	25300	17	1160
2	2600	28	197	8700	9	211	25800	19	1320
3	3100	23	193	9000	8	194	25800	17	1180
4	3900	19	200	8900	10	240	26300	16	1140
5	4000	19	205	9200	10	248	27500	17	1260
6	2700	17	124	11300	16	488	28800	21	1630
7	2400	21	136	13000	24	842	28800	25	2180
8	6600	30	535	13400	18	651	29500	28	2230
9	6900	19	354	9400	7	178	29800	34	2760
10	7100	16	307	14600	19	749	30000	35	2940
11	7300	14	276	14600	20	788	30500	37	3050
12	7200	12	233	14000	13	491	31300	43	3630
13	7100	13	249	14600	11	434	33300	43	3870
14	6900	11	205	18000	16	778	34300	45	4170
15	6700	10	181	19200	21	1090	34500	42	3910
16	6700	9	163	20600	31	1720	34500	42	3910
17	6700	6	109	25000	30	2030	34800	43	4040
18	6000	8	130	25500	27	1860	34800	39	3660
19	4200	10	113	24800	23	1540	35000	36	3400
20	5100	8	110	23500	23	1460	34800	32	3010
21	4500	8	97	25300	33	2250	34300	36	3330
22	5900	13	207	25800	46	3200	34100	31	2850
23	6900	9	168	25800	41	2860	34100	30	2760
24	6500	8	140	25500	29	2000	34500	24	2240
25	5900	6	96	25300	30	2050	33500	21	1900
26	5700	8	123	25000	26	1760	33500	19	1720
27	6000	9	146	24500	20	1320	31500	20	1700
28	7400	6	120	24800	20	1340	29000	18	1410
29	7800	11	232	24500	18	1190	28300	16	1220
30	8100	10	219	24300	20	1310	28000	18	1360
31	--	--	--	25000	21	1420	--	--	--
TOTAL	170100	--	5806	581700	--	36855	936200	--	74820

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	28000	21	1590	26800	5	362	8400	3	68
2	27800	21	1580	32900	6	533	7700	3	62
3	27500	14	1040	33500	6	543	7600	3	62
4	26800	11	796	29400	5	397	6300	3	51
5	25500	13	895	19600	6	318	7000	3	57
6	15100	13	530	16200	3	131	7800	3	63
7	10000	15	405	15400	4	166	7900	3	64
8	3400	11	101	17300	3	140	8100	4	87
9	3900	12	126	20400	2	110	9000	3	73
10	3900	16	168	18400	2	99	9100	4	98
11	3600	18	175	15700	3	127	8900	2	48
12	3400	13	119	14900	2	80	13600	3	110
13	4900	19	251	14600	2	79	25800	4	279
14	14000	14	529	13600	2	73	32600	7	616
15	26500	12	859	12800	3	104	31900	5	689
16	24300	10	656	16000	3	130	31000	12	1000
17	23000	10	621	17300	2	93	29700	5	401
18	18600	9	452	11000	3	89	32000	4	346
19	19300	11	573	4000	1	11	32200	10	869
20	31000	10	837	4600	4	50	32600	8	704
21	24000	7	454	4600	3	37	32400	8	700
22	21100	7	399	4600	4	50	23500	8	508
23	20400	5	275	4600	3	37	10700	4	116
24	20900	7	395	4400	3	36	24000	5	324
25	26600	4	287	4400	2	24	31800	6	515
26	24500	7	463	4300	2	23	31300	4	338
27	23500	8	508	4300	3	35	31800	4	343
28	26600	9	646	4600	4	50	30700	4	332
29	32500	10	878	5800	2	31	31000	4	335
30	32500	6	527	5700	3	46	31700	5	428
31	32700	5	435	6800	3	55	--	--	--
TOTAL	625300	--	17570	408500	--	4059	628100	--	9686

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 3992000
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 163848.4

12302055 FISHER RIVER NEAR LIBBY, MONT.

LOCATION (revised).--Lat 48°21'20", long 115°18'50", in NW¼NE¼NW¼ sec.21, T.30 N., R.29 W., Lincoln County, at bridge 0.2 mile upstream from gaging station, 1 mile upstream from mouth, and 11.6 miles east of Libby.

DRAINAGE AREA.--838 sq mi (at gaging station).

PERIOD OF RECORD.--Chemical analyses: June 1967 to September 1972.
Water temperatures: September 1967 to September 1972.
Sediment records: September 1967 to September 1972.

EXTREMES.--1971-72:
Water temperatures: Maximum, 24.0°C Aug. 8; minimum, freezing point on many days during October to February.
Sediment concentrations: Maximum daily, 938 mg/l Mar. 18; minimum daily, 1 mg/l on many days during October to January.
Sediment discharge: Maximum daily, 12,200 tons Mar. 18; minimum daily, 0.35 ton Dec. 28, Jan. 14.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)
OCT.										
15...	0745	192	12	25	9.7	3.3	.7	--	5.8	.6
NOV.										
12...	0945	173	12	27	10	3.4	1.3	--	8.5	2.4
DEC.										
17...	0830	170	12	28	10	3.8	1.3	--	6.5	.8
JAN.										
05...	1400	160	12	27	11	3.6	1.0	--	7.2	1.2
FEB.										
08...	1200	220	12	24	9.9	3.4	.8	122	6.0	1.7
MAR.										
13...	0930	2220	15	15	4.7	3.6	1.3	70	4.9	1.0
APR.										
10...	0930	1790	14	15	5.0	3.0	1.8	69	5.0	1.6
MAY										
01...	1330	1510	14	15	5.0	2.5	.9	74	4.1	.8
JUNE										
06...	0930	2000	8.6	9.2	2.9	2.4	.6	44	3.1	.3
JULY										
10...	0900	567	14	16	5.6	2.4	.7	--	4.6	.3
AUG.										
14...	0930	198	9.8	25	9.1	3.2	.9	113	5.4	1.1
SEP.										
22...	1045	153	11	29	11	3.5	.9	139	5.3	1.3

DATE	TIME	DIS-CHARGE (CFS)	TOTAL NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT.												
15...	0745	192	.59	.13	.01	.000	.50	.14	.050	.010	16	.00
NOV.												
12...	0945	173	.41	.23	.14	.000	.04	.37	.060	.050	1.0	.00
DEC.												
17...	0830	170	.21	.15	.02	.000	.04	.17	.040	.010	--	.00
JAN.												
05...	1400	160	.26	.14	.04	.000	.08	.18	.020	.010	2.0	.00
FEB.												
08...	1200	220	.38	.29	.04	.000	.05	.33	.020	.000	.0	.00
MAR.												
13...	0930	2220	.55	.36	.14	.000	.05	.50	.080	.000	--	.00
APR.												
10...	0930	1790	.44	.34	.03	.000	.07	.37	.040	.010	3.0	.00
MAY												
01...	1330	1510	.19	.14	.05	.000	.00	.19	.040	.010	--	.00
JUNE												
06...	0930	2000	.18	.14	.04	.000	.00	.18	.040	.000	--	.00
JULY												
10...	0900	567	.05	.02	.03	.000	.00	.05	.010	.000	.0	.00
AUG.												
14...	0930	198	.34	.32	.01	.000	.01	.33	.030	.010	--	.00
SEP.												
22...	1045	153	.29	.27	.02	.000	.00	.29	.020	.010	--	.00

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

EXTREMES.--Continued

Period of record:
Water temperatures: Maximum recorded, 24.0°C July 11, Aug. 3, 1968, Aug. 5, 1971, Aug. 8, 1972; minimum, freezing point on many days during winter periods.
Sediment concentrations: Maximum daily, 1,710 mg/l Jan. 31, 1971; minimum daily, 1 mg/l on several days in 1967, 1969-71, many days in 1972.
Sediment discharge: Maximum daily, 13,200 tons Jan. 31, 1971; minimum daily, 0.30 ton Sept. 17, 22, 1967.

REMARKS.--Temperature recorder at gaging station 0.2 mile downstream from sampling site. Flow affected by ice during most of winter period. During periods of ice effect, sediment samples are taken in open channel. Flow affected by diversions for irrigation of about 700 acres upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	COLOR (PLAT-INUM-COBALT UNITS)	CARBON DIOXIDE (CO2) (MG/L)
OCT.										
15...	.1	10	140	.19	72.6	100	--	.1	5	--
NOV.										
12...	.1	10	138	.19	64.5	110	--	.1	0	--
DEC.										
17...	.2	10	154	.21	70.7	110	--	.2	0	--
JAN.										
05...	.2	10	136	.19	58.8	110	--	.1	0	--
FEB.										
08...	.0	10	132	.18	78.4	100	1	.1	0	--
MAR.										
13...	.1	50	80	.11	480	57	0	.2	30	4.5
APR.										
10...	.2	30	68	.09	329	50	1	.2	20	1.1
MAY										
01...	.1	30	106	.14	432	57	0	.1	40	12
JUNE										
06...	.0	20	62	.08	335	34	0	.2	20	4.4
JULY										
10...	.0	0	136	.19	208	62	--	.1	10	--
AUG.										
14...	.5	30	130	.19	73.8	100	7	.1	5	4.5
SEP.										
22...	.1	20	134	.18	55.4	110	4	.1	5	1.1

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	TUR-BID-ITY (JTU)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
OCT.								
15...	0745	6.0	3.0	1	220	12.0	7.9	104
NOV.								
12...	0945	3.5	3.0	1	245	13.0	7.1	105
DEC.								
17...	0830	.0	1.0	1	230	14.2	7.0	125
JAN.								
05...	1400	.0	-3.0	1	230	14.0	7.8	123
FEB.								
08...	1200	.0	1.5	2	205	13.0	7.8	98
MAR.								
13...	0930	3.0	3.0	45	135	12.2	7.4	57
APR.								
10...	0930	3.5	-1.0	10	125	12.4	8.0	60
MAY								
01...	1330	6.5	13.0	10	120	12.0	7.0	55
JUNE								
06...	0930	9.2	15.0	20	80	10.4	7.2	36
JULY								
10...	0900	12.0	10.0	7	90	9.8	7.8	72
AUG.								
14...	0930	16.5	17.0	5	205	9.0	7.6	93
SEP.								
22...	1045	9.5	10.5	2	210	10.8	8.3	103

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	HEXA-VALENT CHRO-MIUM (CR6) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)
OCT.											
15...	0745	192	100	7	100	0	0	0	0	1	0
JAN.											
05...	1400	160	0	5	0	0	0	2	1	2	1
APR.											
10...	0930	1790	100	2	100	0	0	0	0	0	2
JULY											
10...	0900	567	0	2	0	0	0	0	0	0	1

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	6.0	2.5	0.5	2.5	1.0	0.0	0.0	0.0	0.0	2.0	1.0
2	10.0	6.0	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
3	11.0	7.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
4	13.0	10.0	4.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
5	13.5	9.5	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	2.5	2.0
6	13.0	9.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.0
7	13.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.0
8	12.5	9.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
9	12.0	8.5	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0
10	11.5	8.5	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.5
11	10.5	8.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5	2.5
12	9.5	7.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
13	9.0	8.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
14	8.0	7.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
15	7.0	6.0	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0
16	6.0	5.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0
17	6.5	3.5	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	2.5
18	5.5	4.5	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0
19	6.0	5.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.5
20	6.5	5.5	5.0	3.0	0.0	0.0	0.0	0.0	0.5	0.0	4.0	3.5
21	6.5	4.5	4.5	3.5	0.0	0.0	0.0	0.0	0.5	0.0	4.5	3.5
22	6.0	4.5	4.0	2.5	0.0	0.0	0.0	0.0	0.5	0.0	5.0	4.0
23	6.0	4.5	2.5	1.0	0.0	0.0	0.0	0.0	0.5	0.0	4.5	3.5
24	8.0	6.0	1.5	1.0	0.0	0.0	0.0	0.0	1.0	0.5	4.5	3.5
25	6.5	5.0	2.0	1.5	0.0	0.0	0.0	0.0	2.0	1.0	4.0	3.5
26	6.0	5.0	2.0	1.5	0.0	0.0	0.0	0.0	2.0	1.5	4.0	3.5
27	5.0	2.5	2.5	2.0	0.0	0.0	0.0	0.0	2.0	1.5	4.0	3.5
28	2.5	0.5	2.5	2.0	0.0	0.0	0.0	0.0	2.0	1.0	4.0	3.5
29	0.5	0.5	2.5	2.0	0.0	0.0	0.0	0.0	1.0	1.0	4.5	3.5
30	0.5	0.0	2.5	2.5	0.0	0.0	0.0	0.0	---	---	5.5	4.0
31	1.0	0.5	---	---	0.0	0.0	0.0	0.0	---	---	6.0	4.5
MONTH	13.5	0.0	5.0	0.0	2.5	0.0	0.0	0.0	2.0	0.0	6.0	1.0

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPER-ATURE (DEG C)	DIS-CHARGE (CFS)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM
FEB.									
29...	0745	.0	2610	861	6070	21	46	84	95
MAR.									
20...	1350	3.5	4420	380	4530	18	46	--	--

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.											
15...	20	0	0	0	.0	0	4	0	100	.0	10
JAN.											
05...	10	0	10	8	.3	0	4	0	110	.1	10
APR.											
10...	70	1	0	10	.3	7	3	0	60	.8	20
JULY											
10...	10	1	0	13	.0	0	5	0	60	1.2	20

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.5	5.5	8.0	5.0	11.0	8.5	15.5	13.0	20.5	15.5	18.5	13.0
2	6.0	4.5	8.0	6.0	11.0	8.0	14.0	11.5	19.0	16.5	18.0	12.5
3	5.5	3.5	8.0	6.0	11.0	8.5	15.5	11.0	20.0	15.0	18.5	13.0
4	5.0	4.0	8.0	6.5	11.0	8.0	16.5	12.0	21.0	15.0	18.5	13.0
5	6.0	4.5	8.0	7.0	12.0	9.0	18.0	13.5	21.0	16.0	16.5	14.0
6	6.5	5.5	7.0	6.0	12.5	9.0	18.0	15.0	22.0	16.5	15.0	14.0
7	6.0	5.0	7.5	6.0	12.5	10.0	19.0	16.0	23.0	17.0	16.0	12.0
8	5.0	4.0	7.5	7.0	12.0	10.0	18.0	15.0	24.0	18.0	16.0	12.0
9	5.5	4.0	7.0	6.5	12.0	10.5	16.5	15.0	23.5	18.0	17.0	14.0
10	5.0	3.5	7.5	6.5	12.0	10.5	15.0	12.0	23.0	17.5	16.0	11.0
11	5.5	4.5	9.0	7.0	12.0	10.5	15.0	13.5	22.0	16.5	15.0	10.5
12	5.5	4.5	10.0	7.0	11.0	9.5	15.0	13.5	22.0	18.0	14.0	13.0
13	5.5	5.0	10.0	7.0	10.5	9.0	17.5	14.0	21.0	17.0	16.0	12.0
14	5.5	5.0	9.5	7.0	13.0	10.0	17.5	14.0	21.0	16.0	17.0	12.0
15	6.5	5.5	9.0	7.0	14.0	11.5	18.0	14.0	20.0	17.0	16.0	12.5
16	6.0	5.0	9.0	7.0	14.0	12.5	18.0	14.0	20.5	16.0	15.0	13.0
17	5.0	4.5	9.0	7.0	14.0	11.5	18.0	14.0	18.5	16.0	15.0	12.0
18	6.0	4.5	8.0	6.5	13.5	11.5	17.0	13.5	20.0	14.0	16.0	12.0
19	7.0	4.5	9.5	6.5	13.0	11.5	13.5	12.0	20.0	16.0	15.5	13.5
20	8.0	6.0	9.5	8.0	12.5	11.0	13.0	11.5	22.0	16.5	13.5	11.0
21	7.5	6.5	8.0	7.0	12.0	11.0	13.0	11.0	21.0	16.5	13.0	11.5
22	7.5	5.0	8.5	7.5	13.5	10.5	15.0	12.5	19.0	16.0	12.0	10.5
23	7.5	5.0	8.5	7.0	13.0	12.0	17.5	13.0	18.0	14.5	11.0	10.0
24	7.5	6.5	8.5	7.0	12.5	10.5	16.0	14.0	20.5	14.5	11.0	9.5
25	7.0	6.5	8.0	7.0	12.0	11.0	19.5	13.0	21.0	16.0	11.0	9.0
26	8.5	6.0	9.0	7.0	11.0	10.0	20.0	15.0	22.0	16.0	10.5	8.5
27	9.5	6.5	11.0	7.5	12.0	10.0	20.5	15.5	22.0	16.5	10.0	8.5
28	9.0	7.0	11.5	8.5	16.0	11.5	21.0	15.5	22.5	17.0	9.0	8.0
29	8.5	6.5	12.0	8.5	16.0	13.0	21.0	16.0	22.0	16.5	9.5	6.5
30	7.0	5.5	12.0	8.5	16.0	13.0	22.0	16.0	20.5	16.0	11.5	7.0
31	---	---	11.5	8.5	---	---	20.0	17.5	19.0	14.0	---	---
MONTH	9.5	3.5	12.0	5.0	16.0	8.0	22.0	11.0	24.0	14.0	18.5	6.5
YEAR	24.0	0.0										

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM	SUS. SED. SIEVE DIAM. % FINER THAN 1.00 MM	SUS. SED. SIEVE DIAM. % FINER THAN 2.00 MM
FEB.								
29...	99	100	--	--	--	--	--	--
MAR.								
20...	--	--	76	83	88	92	94	100

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	OCTOBER			NOVEMBER			DECEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	152	1	.41	186	2	.90	153	10	4.1
2	149	1	.40	186	1	.45	139	4	1.5
3	148	2	.80	184	2	.89	145	4	1.6
4	147	3	1.2	180	2	.97	145	4	1.6
5	146	15	5.9	196	2	1.1	150	3	1.2
6	148	2	.80	170	1	.46	151	7	2.9
7	146	2	.79	171	1	.46	95	2	.51
8	145	2	.78	167	1	.45	80	3	.65
9	144	2	.78	161	1	.43	110	6	1.8
10	144	1	.39	160	1	.43	150	10	4.1
11	142	9	3.5	165	1	.45	140	3	1.1
12	140	1	.38	165	2	.89	130	4	1.4
13	151	1	.41	170	1	.46	140	13	4.9
14	203	4	2.2	173	1	.47	150	6	2.4
15	180	1	.49	170	1	.46	160	6	2.6
16	169	2	.91	168	1	.45	150	9	3.6
17	162	3	1.3	164	1	.44	170	8	3.7
18	158	1	.43	163	1	.44	180	6	2.9
19	160	1	.43	160	1	.43	170	5	2.3
20	189	2	1.0	160	15	6.5	160	9	3.9
21	189	4	2.0	163	3	1.3	170	7	3.2
22	172	1	.46	161	1	.43	180	9	4.4
23	166	1	.45	157	1	.42	190	8	4.1
24	166	1	.45	160	1	.43	180	4	1.9
25	164	1	.44	164	1	.44	170	5	2.3
26	176	1	.48	164	1	.44	160	2	.86
27	220	7	4.2	162	1	.44	140	2	.76
28	183	20	9.9	160	1	.43	130	1	.35
29	160	13	5.6	159	1	.43	140	4	1.5
30	167	1	.45	156	2	.84	150	2	.81
31	164	2	.89	---	---	---	160	3	1.3
TOTAL	5050	--	48.62	4965	--	23.13	4638	--	70.24

	JANUARY			FEBRUARY			MARCH		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	170	2	.92	190	3	1.5	2000	209	1130
2	160	2	.86	180	3	1.5	1480	99	396
3	140	2	.76	170	3	1.4	1210	91	297
4	150	2	.81	180	3	1.5	1030	48	133
5	160	2	.86	190	3	1.5	983	49	130
6	170	2	.92	200	3	1.6	1420	122	468
7	180	2	.97	210	5	2.8	1490	82	330
8	190	2	1.0	220	4	2.4	1390	51	191
9	190	3	1.5	210	7	4.0	1330	50	180
10	180	3	1.5	190	4	2.1	1420	98	376
11	170	2	.92	200	4	2.2	1900	209	1070
12	160	2	.86	200	4	2.2	2100	190	1080
13	140	2	.76	210	9	5.1	2250	218	1320
14	130	1	.35	220	8	4.8	2620	302	2140
15	150	1	.41	240	10	6.5	2720	291	2140
16	170	2	.92	280	17	13	3080	415	3450
17	180	2	.97	350	23	22	4040	850	9270
18	170	2	.92	330	11	9.8	4820	938	12200
19	160	2	.86	319	42	35	4740	588	7530
20	180	4	1.9	300	44	36	4360	410	4830
21	200	16	8.6	290	34	27	3800	270	2770
22	220	22	13	300	56	45	3340	191	1720
23	210	9	5.1	320	39	34	3200	160	1380
24	190	4	2.1	350	24	23	3180	139	1190
25	170	2	.92	389	13	14	2930	129	1020
26	160	2	.86	363	9	8.8	2540	111	761
27	150	1	.41	429	96	131	2230	92	554
28	170	1	.46	1410	626	2460	1960	71	376
29	180	2	.97	2630	783	5560	1770	65	311
30	190	3	1.5	---	---	---	1600	54	233
31	200	2	1.1	---	---	---	1510	47	192
TOTAL	5340	--	53.99	11061	--	8459.7	74443	--	59168

12302055 FISHER RIVER NEAR LIBBY, MONT.--Continued

SUSPENDED-SEDIMENT DISCHARGE, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

	APRIL			MAY			JUNE		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	1590	46	186	1520	35	144	3150	211	1790
2	1640	57	252	1480	34	136	2780	127	953
3	*1630*	*49*	*216*	*1530*	*37*	*153*	*2350*	*93*	*590*
4	1570	36	153	1680	57	259	2060	72	400
5	1540	45	187	1970	88	468	1970	60	319
6	1880	68	345	2210	107	638	1940	59	309
7	2260	67	409	2190	94	556	1950	65	342
8	2170	64	375	2060	67	373	1930	56	292
9	1970	47	250	2070	52	291	1940	62	325
10	1770	37	177	2050	56	310	1930	63	328
11	1630	29	128	2060	53	295	1920	62	321
12	1530	27	112	2210	91	543	1780	48	231
13	1460	24	95	2760	258	1920	1550	42	176
14	1360	22	81	3420	415	3830	1340	38	137
15	1300	27	95	3960	485	5190	1250	34	115
16	1300	24	84	4060	347	3800	1290	38	132
17	1260	29	99	3910	272	2870	1270	29	99
18	1170	23	73	3620	186	1820	1170	27	85
19	1100	21	62	3110	134	1130	1090	33	97
20	1060	19	54	2920	112	883	1000	23	62
21	1050	24	68	2980	114	917	1070	26	75
22	1060	25	72	3040	112	919	1030	24	67
23	1020	13	36	2910	98	770	1030	22	61
24	1020	16	44	2590	86	601	1000	18	49
25	1050	14	40	2300	74	460	914	18	44
26	1090	18	53	2050	64	354	901	17	41
27	1140	22	68	1900	55	282	858	16	37
28	1340	37	134	2070	83	464	807	17	37
29	1980	62	264	2410	123	800	841	20	45
30	1630	49	216	2750	185	1370	813	20	44
31	--	--	--	3090	243	2030	--	--	--
TOTAL	43080	--	4428	78880	--	34576	44924	--	7603

	JULY			AUGUST			SEPTEMBER		
DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
1	762	19	39	270	3	2.2	153	10	4.1
2	687	17	32	286	11	8.5	151	3	1.2
3	637	12	21	291	5	3.9	150	4	1.6
4	606	11	18	269	5	3.6	148	3	1.2
5	589	12	19	250	3	2.0	146	3	1.2
6	579	12	19	240	4	2.6	145	4	1.6
7	601	14	23	235	12	7.6	147	3	1.2
8	582	15	24	230	10	6.2	145	4	1.6
9	554	11	16	224	10	6.0	151	4	1.6
10	524	8	11	216	7	4.1	153	3	1.2
11	483	9	12	212	8	4.6	148	3	1.2
12	467	10	13	209	4	2.3	155	4	1.7
13	489	12	16	204	3	1.7	167	10	4.5
14	523	13	18	201	2	1.1	157	10	4.2
15	468	13	16	199	3	1.6	152	4	1.6
16	432	11	13	220	4	2.4	146	4	1.6
17	416	7	7.9	227	3	1.8	143	3	1.2
18	403	6	6.5	214	9	5.2	142	3	1.2
19	462	8	10	201	6	3.3	141	9	3.4
20	408	5	5.5	194	3	1.6	146	3	1.2
21	376	5	5.1	190	7	3.6	145	2	.78
22	356	6	5.8	187	3	1.5	158	5	2.1
23	343	6	5.6	194	4	2.1	167	12	5.4
24	330	5	4.5	187	3	1.5	168	12	5.4
25	322	4	3.5	179	2	.97	168	6	2.7
26	312	4	3.4	173	10	4.7	166	6	2.7
27	301	4	3.3	170	2	.92	160	10	4.3
28	290	2	1.6	166	2	.90	156	4	1.7
29	280	3	2.3	161	4	1.7	153	8	3.3
30	273	2	1.5	156	3	1.3	150	5	2.0
31	264	4	2.9	153	5	2.1	--	--	--
TOTAL	14119	--	379.4	6508	--	93.59	4577	--	68.68

TOTAL DISCHARGE FOR YEAR (CFS-DAYS) 297585
TOTAL SUSPENDED-SEDIMENT DISCHARGE FOR YEAR (TONS) 114972.35

12303000 KOOTENAI RIVER AT LIBBY, MONT.

LOCATION (revised).--Lat 48°24'03", long 115°33'08", in SW¼SE¼SW¼ sec.34, T.31 N., R.31 W., Lincoln County, at bridge on State Highway 37 at Libby, 1,800 ft upstream from gaging station, 0.5 mile downstream from Libby Creek, and at mile 204.6.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
12...	1015	5180	41	--	.9	--	--	.6	--	--	--	150
NOV.												
09...	1000	3800	--	--	--	--	--	.9	--	--	--	--
DEC.												
14...	1030	2670	--	--	--	--	--	.8	--	--	--	--
JAN.												
06...	1030	3000	43	--	.9	--	--	1.0	--	--	--	160
FEB.												
09...	0900	3000	--	--	--	--	--	1.0	--	--	--	--
MAR.												
16...	1000	9990	--	--	--	--	--	.7	--	--	--	--
APR.												
12...	1000	9480	35	--	.9	--	--	.5	--	--	--	130
MAY												
02...	1030	11400	--	--	--	--	--	.5	--	--	--	--
JUNE												
08...	1130	31400	--	--	--	--	--	.2	--	--	--	--
JULY												
14...	1030	11100	27	.7	--	11	1.0	.4	116	.16	3480	94
AUG.												
21...	1130	4800	29	1.4	--	13	1.2	.3	134	.18	1740	100
SEP.												
20...	0800	32600	29	1.4	--	13	2.0	.2	126	.17	11100	100

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
12...	1015	9.0	3.0	320	11.6	8.1	115	24	4
NOV.									
09...	1000	.5	-3.0	325	14.5	7.6	119	320	69
DEC.									
14...	1030	.0	-2.0	280	14.0	7.4	140	43	1
JAN.									
06...	1030	.0	2.0	360	14.0	8.1	137	--	2
FEB.									
09...	0900	.0	-2.5	345	13.6	7.8	129	700	73
MAR.									
16...	1000	4.5	4.0	235	13.0	8.1	90	190	17
APR.									
12...	1000	5.5	.0	255	13.0	7.8	103	6600	150
MAY									
02...	1030	7.5	9.0	280	13.0	7.7	112	13	3
08...	1300	--	--	--	--	--	--	38	1
JUNE									
08...	1130	10.5	21.0	195	12.8	8.0	88	200	7
JULY									
14...	1030	11.5	22.5	195	12.0	8.0	86	53	10
AUG.									
21...	1130	12.1	26.0	205	12.6	8.2	79	360	0
SEP.									
20...	0800	11.5	1.5	195	11.8	7.9	76	150	3

12303000 KOOTENAI RIVER AT LIBBY, MONT.--Continued

DRAINAGE AREA.--10,240 sq mi, approximately.

PERIOD OF RECORD.--Chemical analyses: July 1969 to September 1972.

REMARKS.--Flow affected by Lake Koocanusa since Mar. 21, 1972.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.												
12...	60	5	1	0	0	0	20	1	12	.1	2	0
NOV.												
09...	2	5	--	--	--	--	10	--	--	.0	--	40
DEC.												
14...	2	5	--	--	--	--	20	--	--	.2	--	20
JAN.												
06...	1	0	8	0	2	1	10	0	14	.2	1	20
FEB.												
09...	2	3	--	--	--	--	10	--	--	.3	--	20
MAR.												
16...	30	20	--	--	--	--	50	--	--	.1	--	10
APR.												
12...	9	20	5	0	0	1	50	0	10	.2	3	20
MAY												
02...	3	2	--	--	--	--	30	--	--	.1	--	20
JUNE												
08...	30	20	--	--	--	--	30	--	--	.2	--	8
JULY												
14...	--	--	--	--	--	--	--	--	6.5	--	--	--
AUG.												
21...	--	--	--	--	--	--	--	--	6.9	--	--	--
SEP.												
20...	--	--	--	--	--	--	--	--	7.1	--	--	--

DATE	TIME	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.												
12...	1015	.10	.05	.08	.09	.22	.17	.10	.040	.16	5.0	2.0
NOV.												
09...	1000	--	--	--	--	--	--	--	--	--	--	1.7
DEC.												
14...	1030	--	--	--	--	--	--	--	--	--	--	1.3
JAN.												
06...	1030	.05	.05	.11	.17	.33	.28	.14	.12	.17	1.0	1.3
FEB.												
09...	0900	--	--	--	--	--	--	--	--	--	--	1.2
MAR.												
16...	1000	--	--	--	--	--	--	--	--	--	--	1.5
APR.												
12...	1000	.30	.30	.06	.09	.17	.15	.050	.020	.070	.0	1.1
MAY												
02...	1030	--	--	--	--	--	--	--	--	--	--	1.8
JUNE												
08...	1130	--	--	--	--	--	--	--	--	--	--	1.0
JULY												
14...	1030	--	.04	--	--	.12	.08	.020	.010	.070	--	1.0
AUG.												
21...	1130	--	--	--	--	--	--	--	--	--	--	1.7
SEP.												
20...	0800	--	--	--	--	--	--	--	--	--	--	1.6

DATE	TIME	DISCHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
12...	1015	5180	10	1	4	1	170	4	--	.4	10
JAN.											
06...	1030	3000	8	<1	3	1	40	4	--	.2	20
APR.											
12...	1030	9480	6	0	0	20	550	13	10	--	50

KOOTENAI RIVER BASIN

12304500 YAAK RIVER NEAR TROY, MONT.

LOCATION.--Lat 48°33'43", long 115°58'09", in NE¼SE¼SE¼ sec.5, T.32 N., R.34 W., Lincoln County, Kootenai National Forest, temperature recorder at gaging station on right bank 500 ft upstream from bridge on U.S. Highway 2, 0.2 mile upstream from mouth, and 7.7 miles northwest of Troy.

DRAINAGE AREA.--766 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1963 to September 1972 (seasonal records only).

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	8.0	---	---	---	---	---	---	---	---	---	---
2	11.0	8.5	---	---	---	---	---	---	---	---	---	---
3	11.0	9.0	---	---	---	---	---	---	---	---	---	---
4	11.5	10.0	---	---	---	---	---	---	---	---	---	---
5	13.5	10.0	---	---	---	---	---	---	---	---	---	---
6	13.5	10.5	---	---	---	---	---	---	---	---	---	---
7	13.5	10.0	---	---	---	---	---	---	---	---	---	---
8	13.0	10.0	---	---	---	---	---	---	---	---	---	---
9	12.0	9.5	---	---	---	---	---	---	---	---	---	---
10	11.5	9.0	---	---	---	---	---	---	---	---	---	---
11	11.0	8.5	---	---	---	---	---	---	---	---	---	---
12	10.0	7.0	---	---	---	---	---	---	---	---	---	---
13	9.5	8.0	---	---	---	---	---	---	---	---	---	---
14	9.0	6.5	---	---	---	---	---	---	---	---	---	---
15	8.0	5.0	---	---	---	---	---	---	---	---	---	---
16	6.0	4.0	---	---	---	---	---	---	---	---	---	---
17	5.5	3.5	---	---	---	---	---	---	---	---	---	---
18	5.5	3.5	---	---	---	---	---	---	---	---	---	---
19	6.5	4.5	---	---	---	---	---	---	---	---	---	---
20	7.0	5.5	---	---	---	---	---	---	---	---	---	---
21	7.0	5.5	---	---	---	---	---	---	---	---	---	---
22	6.5	5.0	---	---	---	---	---	---	---	---	---	---
23	7.0	5.5	---	---	---	---	---	---	---	---	---	---
24	8.5	6.0	---	---	---	---	---	---	---	---	---	---
25	8.0	5.5	---	---	---	---	---	---	---	---	---	---
26	6.5	5.0	---	---	---	---	---	---	---	---	---	---
27	6.0	1.5	---	---	---	---	---	---	---	---	---	---
28	3.0	1.0	---	---	---	---	---	---	---	---	---	---
29	2.0	0.5	---	---	---	---	---	---	---	---	---	---
30	1.5	0.5	---	---	---	---	---	---	---	---	---	---
31	1.5	0.5	---	---	---	---	---	---	---	---	---	---
MONTH	13.5	0.5	---	---	---	---	---	---	---	---	---	---

PEND OREILLE RIVER BASIN

12323800 CLARK FORK NEAR GALEN, MONT.

LOCATION.--Lat 46°12'30", long 112°46'00", in NE¼NE¼NE¼ sec.7, T.5 N., R.9 W., Deer Lodge County, on upstream side of county bridge, 1.6 miles downstream from Warm Springs Creek, 1.9 miles southeast of Galen, and at mile 481.9.

DRAINAGE AREA.--793 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
13...	1300	129	290	--	5.2	--	--	1.2	--	--	--	790
NOV.												
17...	1145	183	--	--	--	--	--	2.2	--	--	--	--
DEC.												
10...	0830	109	--	--	--	--	--	2.2	--	--	--	--
JAN.												
05...	1400	109	420	--	10	--	--	2.8	--	--	--	1200
FEB.												
15...	1100	145	--	--	--	--	--	1.4	--	--	--	--
MAR.												
20...	1615	346	--	--	--	--	--	1.9	--	--	--	--
APR.												
18...	1230	221	410	--	7.0	--	--	2.4	--	--	--	1100
MAY												
18...	1300	417	--	--	--	--	--	1.8	--	--	--	--
JUNE												
15...	1230	527	--	--	--	--	--	1.0	--	--	--	--
JULY												
19...	1500	94	430	16	--	1100	9.0	2.9	1810	2.46	459	1200
AUG.												
23...	1215	87	680	22	--	1800	2.3	3.6	2770	3.77	651	1800
SEP.												
20...	1230	53	540	21	--	1400	12	2.6	2180	2.96	312	1500

12304500 YAAK RIVER NEAR TROY, MONT.--Continued

EXTREMES.--1971-72:
Water temperatures: Maximum, 23.0°C Aug. 7-9.

Period of record:
Water temperatures: Maximum, 25.0°C Aug. 8, 1971.

REMARKS.--Recorder removed Nov. 1 to Apr. 18, inoperative June 1-12, Aug. 25 to Sept. 30. Records furnished by Corps of Engineers, U.S. Army. Flow not regulated and only slightly affected by diversions for irrigation of 30 acres upstream from station.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	8.5	4.5	---	---	16.0	12.0	20.0	15.5	---	---
2	---	---	8.5	5.5	---	---	14.5	11.0	19.0	14.5	---	---
3	---	---	8.5	5.5	---	---	15.5	10.5	19.5	15.0	---	---
4	---	---	9.0	5.5	---	---	16.5	11.0	20.0	16.5	---	---
5	---	---	9.0	5.5	---	---	18.0	12.0	21.0	17.0	---	---
6	---	---	8.5	4.5	---	---	18.5	14.0	21.5	18.5	---	---
7	---	---	8.5	5.0	---	---	18.5	14.5	23.0	19.0	---	---
8	---	---	8.5	5.5	---	---	18.5	14.5	23.0	19.5	---	---
9	---	---	8.0	5.5	---	---	16.5	14.0	23.0	19.0	---	---
10	---	---	8.5	5.5	---	---	15.5	12.0	21.5	18.5	---	---
11	---	---	9.0	5.0	---	---	15.5	13.0	21.0	18.5	---	---
12	---	---	10.0	5.5	---	---	15.0	13.0	20.5	18.0	---	---
13	---	---	10.0	5.5	10.0	8.0	14.5	12.0	21.0	18.5	---	---
14	---	---	9.5	5.5	12.0	8.5	16.0	12.0	20.5	19.0	---	---
15	---	---	9.5	5.5	13.5	9.5	17.0	12.0	21.0	18.5	---	---
16	---	---	8.5	6.0	13.5	11.0	17.0	13.0	20.5	17.0	---	---
17	---	---	8.5	6.0	12.0	10.0	18.0	13.5	19.0	15.0	---	---
18	---	---	8.0	5.0	12.0	9.5	18.0	13.5	19.5	16.5	---	---
19	8.0	3.5	9.5	5.5	12.0	10.0	15.0	11.5	21.5	18.0	---	---
20	8.5	4.5	9.5	6.0	12.0	10.0	15.0	12.0	21.5	18.5	---	---
21	8.5	5.5	9.0	5.5	11.5	10.0	14.0	11.5	21.5	18.0	---	---
22	7.0	4.0	8.5	6.0	13.0	10.0	15.0	11.5	19.0	16.0	---	---
23	9.0	4.0	8.5	6.0	13.0	10.5	16.5	12.0	20.5	16.5	---	---
24	9.0	5.0	8.0	5.5	11.5	9.5	18.0	13.0	21.5	18.0	---	---
25	8.0	5.0	9.0	6.0	11.5	10.0	18.5	13.5	---	---	---	---
26	9.0	5.0	9.5	6.5	11.0	9.5	19.0	14.5	---	---	---	---
27	10.0	5.5	10.5	6.5	11.5	10.0	19.0	15.0	---	---	---	---
28	10.0	6.0	10.5	6.5	15.0	10.5	19.5	15.5	---	---	---	---
29	8.0	5.5	11.0	6.5	15.5	11.5	20.5	15.5	---	---	---	---
30	8.0	4.5	11.0	7.0	16.0	12.0	20.5	16.5	---	---	---	---
31	---	---	11.0	8.0	---	---	20.0	16.5	---	---	---	---
MONTH	---	---	11.0	4.5	---	---	20.5	10.5	---	---	---	---
YEAR	23.0											

PEND OREILLE RIVER BASIN

12323800 CLARK FORK NEAR GALEN, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1971 to September 1972.

REMARKS.--Water discharge values are from streamflow measurements or computed from upstream streamflow stations. Flow affected by mining operations upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.												
13...	60	5	5	1	0	26	20	0	17	.2	7	60
NOV.												
17...	2	3	--	--	--	--	30	--	--	.2	--	230
DEC.												
10...	1	3	--	--	--	--	20	--	--	.4	--	130
JAN.												
05...	20	5	2	7	2	14	10	0	30	.3	2	280
FEB.												
15...	3	0	--	--	--	--	10	--	--	.1	--	60
MAR.												
20...	3	0	--	--	--	--	20	--	--	.5	--	220
APR.												
18...	5	0	10	3	0	20	30	1	19	.0	0	90
MAY												
18...	10	20	--	--	--	--	50	--	--	.1	--	20
JUNE												
15...	6	10	--	--	--	--	70	--	--	.0	--	30
JULY												
19...	--	--	--	--	--	--	--	--	21	--	--	--
AUG.												
23...	--	--	--	--	--	--	--	--	22	--	--	--
SEP.												
20...	--	--	--	--	--	--	--	--	28	--	--	--

12323800 CLARK FORK NEAR GALEN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT.									
13...	1300	6.5	14.5	1500	11.6	8.1	67	330	0
NOV.									
17...	1145	1.5	-1.0	1900	12.2	8.0	57	1300	10
DEC.									
10...	0830	.0	-5.0	2000	11.2	8.6	67	370	60
JAN.									
05...	1400	.0	-1.5	1950	11.0	7.7	80	450	100
FEB.									
15...	1100	1.0	4.5	1650	10.8	8.8	77	--	--
16...	1430	--	--	--	--	--	--	110	14
MAR.									
20...	1615	7.5	11.0	1280	10.2	6.9	56	65	10
APR.									
18...	1230	5.0	5.0	1660	11.2	8.0	61	93	0
MAY									
18...	1300	11.0	18.0	1160	9.4	8.2	46	--	--
JUNE									
15...	1230	13.5	23.5	745	9.0	7.3	53	800	61
JULY									
19...	1500	11.5	8.0	1850	9.2	7.4	61	24	6
AUG.									
23...	1215	15.0	13.5	2500	8.4	7.2	37	110	19
SEP.									
20...	1230	8.0	8.5	2100	10.4	7.4	67	75	15

DATE	TIME	DISSOLVED NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	ORGANIC NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIOCHEMICAL OXYGEN DEMAND (MG/L)
OCT.												
13...	1300	.38	.40	.19	.19	.78	.38	.12	.000	.16	.0	2.4
NOV.												
17...	1145	--	--	--	--	--	--	--	--	--	--	2.1
DEC.												
10...	0830	--	--	--	--	--	--	--	--	--	--	4.5
JAN.												
05...	1400	.54	.55	.68	.92	2.2	1.6	.070	.010	.20	2.0	5.2
FEB.												
15...	1100	--	--	--	--	--	--	--	--	--	--	3.0
MAR.												
20...	1615	--	--	--	--	--	--	--	--	--	--	2.6
APR.												
18...	1230	.37	.39	.40	.08	.87	.48	.10	.020	.18	.0	2.2
MAY												
18...	1300	--	--	--	--	--	--	--	--	--	--	2.5
JUNE												
15...	1230	--	--	--	--	--	--	--	--	--	--	1.6
JULY												
19...	1500	--	.19	--	--	.41	.22	.030	.010	.090	--	1.3
AUG.												
23...	1215	--	--	--	--	--	--	--	--	--	--	1.4
SEP.												
20...	1230	--	--	--	--	--	--	--	--	--	--	1.4

DATE	TIME	DISCHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
13...	1300	129	5	4	2	55	590	4	--	.2	210
JAN.											
05...	1400	109	12	11	7	120	3100	6	--	.4	950
APR.											
18...	1230	221	19	4	0	20	670	12	19	--	230

12328500 FLINT CREEK NEAR PHILIPSBURG, MONT.

LOCATION.--Lat 46°23'46", long 113°18'27", in NE¼NE¼ sec.2, T.7 N., R.14 W., Granite County, at former gaging station site 1.5 miles downstream from Marshall Creek, 4.0 miles north of Philipsburg, and at mile 24.1.

DRAINAGE AREA.--192 sq mi.

PERIOD OF RECORD.--Chemical analyses: April to September 1972.

REMARKS.--Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)
APR.										
13...	1045	107	22	30	80	33	10	6.4	2.5	149
MAY										
17...	1430	--	18	30	50	17	5.2	3.4	1.7	72
JUNE										
14...	1600	247	17	50	60	22	6.4	3.3	1.6	105
JULY										
21...	0930	144	26	30	50	36	12	7.4	2.8	177
AUG.										
24...	1445	151	24	40	50	33	11	6.8	2.6	161
SEP.										
21...	1100	101	31	30	20	37	12	8.7	3.0	187

DATE	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO
APR.										
13...	0	12	3.2	.2	163	.22	47.1	120	1	.3
MAY										
17...	0	9.4	1.7	.2	93	.13	--	64	5	.2
JUNE										
14...	0	7.7	1.3	.1	111	.15	74.0	81	0	.2
JULY										
21...	0	11	2.0	.2	185	.25	71.9	140	0	.3
AUG.										
24...	0	10	2.6	.2	170	.23	69.3	130	0	.3
SEP.										
21...	0	11	3.7	.2	199	.27	54.3	140	0	.3

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
APR.										
13...	1045	107	2	0	0	2	2	1	.3	20
JUNE										
14...	1600	247	5	0	0	1	1	4	.0	10
JULY										
21...	0930	144	5	1	0	0	2	1	.0	0

12328500 FLINT CREEK NEAR PHILIPSBURG, MONT.--Continued

CHEMICAL ANALYSES, APRIL TO SEPTEMBER, 1972

DATE	TIME	DIS-CHARGE (CFS)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)
APR.									
13...	1045	107	1.7	.09	.000	.07	.11	.050	.010
MAY									
17...	1430	242	1.9	.11	.000	.06	.17	.040	.010
JUNE									
14...	1600	247	1.3	.06	.000	.01	.060	.030	.020
JULY									
21...	0930	144	1.7	.03	.000	.03	.35	.050	.040
AUG.									
24...	1445	151	2.1	.03	.000	.01	.070	.040	.020
SEP.									
21...	1100	101	2.9	.05	.000	.00	.070	.070	.030

12331500 FLINT CREEK NEAR DRUMMOND, MONT.

LOCATION.--Lat 46°37'44", long 113°09'00", in NE¼NW¼NE¼ sec.18, T.10 N., R.12 W., Granite County, at former gaging station site at bridge on county road, 2.0 miles upstream from mouth, and 2.7 miles south of Drummond.

DRAINAGE AREA.--490 sq mi.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)
APR.										
13...	1400	218	21	40	10	32	9.5	7.4	2.7	139
MAY										
17...	1130	419	18	100	38	21	5.3	4.4	2.5	78
JUNE										
14...	1200	317	19	40	50	33	8.8	5.5	2.7	144
JULY										
20...	1430	90	29	30	40	55	17	15	5.2	252
AUG.										
23...	1600	85	30	100	75	57	17	16	6.3	250
SEP.										
21...	1315	105	30	20	20	56	17	16	4.7	249

DATE	TIME	DIS-CHARGE (CFS)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)
APR.									
13...	1400	218	2.2	.08	.000	.02	.14	.060	.010
MAY									
17...	1130	419	2.7	.14	.000	.09	.27	.090	.050
JUNE									
14...	1200	317	.9	.06	.000	.05	.14	.040	.020
JULY									
20...	1430	90	1.7	.04	.000	.04	.090	.090	.050
AUG.									
23...	1600	85	1.6	.05	.000	.02	.15	.11	.080
SEP.									
21...	1315	105	2.2	.35	.000	.01	.080	.080	.060

12328500 FLINT CREEK NEAR PHILIPSBURG, MONT.--Continued

CHEMICAL ANALYSES, APRIL TO SEPTEMBER, 1972

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
APR.								
13...	1045	2.0	1.0	245	12.4	7.6	115	27
MAY								
17...	1430	9.0	20.0	140	9.8	7.1	59	930
JUNE								
14...	1600	15.0	24.0	180	8.8	7.5	79	300
JULY								
21...	0930	9.0	10.5	305	9.0	7.4	124	360
AUG.								
24...	1445	16.0	24.5	275	8.9	8.1	115	140
SEP.								
21...	1100	7.0	12.5	310	10.5	7.7	127	230

12331500 FLINT CREEK NEAR DRUMMOND, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: April to September 1972.

REMARKS.--Flow affected by diversions for irrigation upstream from station.

CHEMICAL ANALYSES, APRIL TO SEPTEMBER 1972

DATE	CARBONATE (CO3) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SODIUM ADSORPTION RATIO
APR.										
13...	0	19	3.8	.2	164	.22	96.5	120	5	.3
MAY										
17...	0	13	2.2	.2	106	.14	120	74	10	.2
JUNE										
14...	0	15	2.1	.1	158	.21	135	120	1	.2
JULY										
20...	0	36	6.0	.3	288	.39	70.0	210	1	.5
AUG.										
23...	0	45	7.6	.4	303	.41	69.5	210	7	.5
SEP.										
21...	0	41	7.1	.3	295	.40	83.6	210	6	.5

DATE	TIME	DISCHARGE (CFS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
APR.										
13...	1400	218	0	0	0	2	3	1	.3	20
JUNE										
14...	1200	317	5	0	0	2	2	0	.0	10
JULY										
20...	1430	90	5	0	0	1	2	2	.0	10

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)
APR.								
13...	1400	5.0	3.0	255	11.8	7.8	111	580
MAY								
17...	1130	9.5	18.5	165	9.4	7.4	67	1600
JUNE								
14...	1200	12.0	19.0	255	9.2	7.7	110	12000
JULY								
20...	1430	10.0	11.5	455	9.6	7.8	297	300
AUG.								
23...	1600	13.5	16.5	480	8.8	7.8	170	1200
SEP.								
21...	1315	9.0	17.5	460	10.7	8.1	170	140

12331600 CLARK FORK AT DRUMMOND, MONT.

LOCATION.--Lat 46°39'45", long 113°08'57", in SE¼NW¼SE¼ sec.31, T.11 N., R.12 W., Granite County, at bridge on former U.S. Highway 10A, 0.4 mile southwest of Drummond, 0.9 mile downstream from Flint Creek and at mile 417.0.

DRAINAGE AREA.--2,378 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
13...	1810	556	95	--	4.1	--	--	.7	--	--	--	303
NOV.												
17...	1645	708	--	--	--	--	--	1.0	--	--	--	--
DEC.												
09...	1700	337	--	--	--	--	--	1.1	--	--	--	--
JAN.												
06...	1530	455	150	--	5.2	--	--	1.0	--	--	--	450
FEB.												
16...	1030	572	--	--	--	--	--	.9	--	--	--	--
MAR.												
21...	1625	1250	--	--	--	--	--	.8	--	--	--	--
APR.												
17...	0930	989	94	--	3.8	--	--	.7	--	--	--	290
MAY												
16...	1200	1410	--	--	--	--	--	.6	--	--	--	--
JUNE												
13...	1015	2190	--	--	--	--	--	.3	--	--	--	--
JULY												
21...	1200	560	88	18	--	200	7.0	.8	504	.69	762	289
AUG.												
24...	1700	485	150	24	--	320	7.6	.9	744	1.01	974	460
SEP.												
20...	1510	445	110	19	--	200	7.0	.8	522	.71	655	350

DATE	TIME	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.												
13...	1810	.00	.00	.07	.14	.21	.21	.070	.010	.090	.0	2.0
NOV.												
17...	1645	--	--	--	--	--	--	--	--	--	--	1.8
DEC.												
09...	1700	--	--	--	--	--	--	--	--	--	--	2.6
JAN.												
06...	1530	.20	.20	.17	.30	.67	.47	.040	.030	.080	4.0	1.7
FEB.												
16...	1030	--	--	--	--	--	--	--	--	--	--	2.1
MAR.												
21...	1625	--	--	--	--	--	--	--	--	--	--	1.4
APR.												
17...	0930	.11	.11	.03	.33	.47	.36	.030	.000	.090	3.0	2.3
MAY												
16...	1200	--	--	--	--	--	--	--	--	--	--	3.1
JUNE												
13...	1015	--	--	--	--	--	--	--	--	--	--	1.0
JULY												
21...	1200	--	.00	--	--	.34	.34	.14	.10	.17	--	1.8
AUG.												
24...	1700	--	--	--	--	--	--	--	--	--	--	2.4
SEP.												
20...	1510	--	--	--	--	--	--	--	--	--	--	1.5

12331600 CLARK FORK AT DRUMMOND, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1971 to September 1972.

REMARKS.--Flow affected by irrigation and mining operations upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.												
13...	30	5	0	0	0	5	20	0	16	.2	6	10
NOV.												
17...	4	5	—	—	—	—	30	—	—	.3	—	50
DEC.												
09...	3	5	—	—	—	—	10	—	—	.3	—	60
JAN.												
06...	2	0	5	2	2	3	10	0	18	.1	0	80
FEB.												
16...	7	3	—	—	—	—	20	—	—	.2	—	100
MAR.												
21...	10	20	—	—	—	—	20	—	—	.5	—	32
APR.												
17...	8	20	3	1	0	10	20	0	14	.1	0	30
MAY												
16...	30	40	—	—	—	—	50	—	—	.3	—	0
JUNE												
13...	10	20	—	—	—	—	80	—	—	.0	—	20
JULY												
21...	—	—	—	—	—	—	—	—	17	—	—	—
AUG.												
24...	—	—	—	—	—	—	—	—	20	—	—	—
SEP.												
20...	—	—	—	—	—	—	—	—	18	—	—	—

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT.									
13...	1810	8.5	8.0	650	10.8	8.3	162	170	15
NOV.									
17...	1645	3.0	6.0	875	12.9	8.4	128	20	20
DEC.									
09...	1700	.0	-4.0	840	13.2	8.0	158	880	170
JAN.									
06...	1530	.0	6.0	900	12.2	7.8	152	4900	18
FEB.									
16...	1030	.5	4.5	850	10.8	7.9	131	110	18
MAR.									
21...	1625	7.5	16.0	630	10.8	7.6	114	110	13
APR.									
17...	0930	3.5	3.0	580	11.6	7.7	130	550	16
MAY									
16...	1200	12.0	19.0	545	9.0	7.7	92	800	220
JUNE									
13...	1015	11.0	14.5	420	9.0	7.6	98	46	68
JULY									
21...	1200	12.0	12.5	740	9.2	7.8	148	110	64
AUG.									
24...	1700	18.0	25.5	890	9.9	7.3	143	250	140
SEP.									
20...	1510	8.5	12.5	700	11.2	8.2	149	74	68

DATE	TIME	DISCHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
13...	1810	556	11	1	3	10	100	3	—	.2	20
JAN.											
06...	1530	455	5	2	2	9	220	4	—	.2	80
APR.											
17...	0930	989	8	2	10	10	780	10	14	—	120

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.

LOCATION.--Lat 46°59'21", long 112°30'40", in SE¼SE¼SW¼ sec.5, T.14 N., R.7 W., Lewis and Clark County, at gaging station at bridge 0.4 mile upstream from mouth of Hogum Creek, 3.0 miles downstream from Alice Creek, and 8.2 miles northeast of Lincoln.

DRAINAGE AREA.--96.9 sq mi.

PERIOD OF RECORD.--Chemical analyses: October 1970 to September 1972.
Water temperatures: October 1970 to September 1972.
Sediment records: October 1970 to September 1972.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
OCT.												
14...	1700	20	8.0	--	30	0	--	11	--	--	--	--
16...	1230	15	3.0	13	0	0	27	11	2.3	.9	137	0
28...	1715	17	.5	14	0	0	27	12	2.5	.9	135	0
NOV.												
10...	1715	17	5.0	13	10	0	28	11	2.4	1.0	138	0
26...	1015	17	1.0	13	0	0	27	12	2.4	1.2	138	0
DEC.												
11...	1230	11	.0	14	0	25	30	12	2.3	.7	142	0
18...	1230	15	.0	13	0	0	27	11	2.2	.6	137	0
JAN.												
13...	1730	10	.0	14	10	0	28	11	2.8	1.0	145	0
19...	1100	12	.0	--	30	30	--	11	--	--	--	--
19...	1730	12	.0	13	20	0	27	11	2.4	.9	134	0
FEB.												
02...	1730	13	--	14	10	0	26	11	3.0	.9	142	0
18...	1400	14	1.0	--	--	--	--	--	--	--	--	--
23...	1545	10	2.5	14	10	0	28	12	2.5	.8	144	0
MAR.												
03...	0900	11	--	13	10	0	27	11	2.5	.9	140	0
23...	1030	137	2.0	--	--	--	--	--	--	--	--	--
24...	1715	164	2.5	11	10	0	19	7.6	2.1	.9	87	0
APR.												
05...	1715	113	--	11	20	0	21	8.6	2.7	1.0	96	0
19...	1510	111	7.0	--	--	--	--	--	--	--	--	--
29...	1230	424	--	10	30	0	16	6.4	1.5	.8	76	0
MAY												
03...	1715	238	9.0	11	20	0	18	7.2	1.6	.7	84	0
15...	1715	814	10.5	10	40	10	15	5.7	1.0	.7	64	0
23...	1545	620	9.5	--	40	0	--	6.5	--	--	--	--
JUNE												
01...	1715	536	13.5	9.6	10	36	16	6.4	1.5	.6	74	0
29...	1400	80	15.0	11	20	36	22	9.3	2.1	.6	111	0
29...	1445	76	15.0	--	--	--	--	--	--	--	--	--
JULY												
10...	0800	53	8.5	12	40	30	25	9.3	2.3	.7	118	0
28...	1730	32	19.0	12	20	20	25	10	2.2	.7	123	0
AUG.												
09...	1715	12	20.5	13	30	0	26	10	2.6	.8	129	0
21...	1330	31	13.5	--	50	90	--	11	--	--	--	--
25...	1715	30	18.0	13	50	0	26	11	2.5	.8	129	0
SEP.												
05...	1730	24	11.0	13	10	10	27	11	3.2	1.0	140	0
25...	1715	23	8.0	13	10	20	27	11	2.3	1.0	134	0
28...	1515	23	5.5	--	--	--	--	--	--	--	--	--

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	DIS-SOLVED NITRITE (N) (MG/L)	DIS-SOLVED NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)
FEB.							
18...	1400	14	.05	.000	.05	.020	.010
MAR.							
23...	1030	137	.00	.000	.13	.050	.030
APR.							
19...	1510	111	.05	.010	.00	.030	.000
MAY							
23...	1545	620	.05	.000	.01	.11	.030
JUNE							
29...	1445	76	.03	.000	.01	.030	.020
AUG.							
21...	1330	31	.01	.000	.00	.030	.030
SEP.							
28...	1515	23	.10	.000	.00	.020	.020

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.--Continued

EXTREMES.--1971-72:
Water temperatures: Maximum, 21.0°C Aug. 10-11; minimum, freezing point on many days during December to April.

Period of record:
Water temperatures: Maximum, 21.5°C Aug. 8, 1971; minimum, freezing point on many days during winter periods.

REMARKS.--Abandoned mining dumps present in drainage area. No regulation or diversion of flow upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	PH (UNITS)
OCT.												
14...	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	.6	.1	.00	.010	--	--	--	110	0	.1	8.1
28...	13	.8	.1	.01	.010	137	.19	6.29	120	6	.1	8.0
NOV.												
10...	15	.8	.2	.00	.010	139	.19	6.38	120	2	.1	7.8
26...	16	1.0	.2	.00	.000	141	.19	6.47	120	4	.1	7.8
DEC.												
11...	14	.8	.1	.00	.000	144	.20	4.28	120	8	.1	7.8
18...	13	.6	.1	.00	.000	135	.18	5.47	110	0	.1	7.9
JAN.												
13...	19	.8	.1	.03	.000	142	.19	3.83	120	0	.1	7.6
19...	--	--	--	--	--	--	--	--	--	--	--	--
19...	11	1.1	.0	.04	.000	133	.18	4.49	110	3	.1	7.6
FEB.												
02...	11	.8	.0	.01	.000	137	.19	4.81	110	0	.1	7.7
18...	--	--	--	.05	--	--	--	--	--	--	--	--
23...	11	.8	.1	.00	.000	140	.19	3.97	120	1	.1	8.1
MAR.												
03...	12	1.1	.1	.00	.030	137	.19	4.07	110	0	.1	8.1
23...	--	--	--	.13	--	--	--	--	--	--	--	--
24...	18	1.0	.1	.00	.000	103	.14	45.6	79	7	.1	7.7
APR.												
05...	16	.4	.2	.02	.000	108	.15	33.0	88	9	.1	8.1
19...	--	--	--	.00	--	--	--	--	--	--	--	--
29...	9.8	.9	.1	.01	.000	83	.11	95.0	66	4	.1	8.0
MAY												
03...	14	1.2	.1	.00	.000	95	.13	61.0	75	6	.1	7.9
15...	14	1.0	.1	.01	.010	79	.11	176	61	8	.1	8.0
23...	--	--	--	.01	--	--	--	--	--	--	--	--
JUNE												
01...	13	1.0	.3	.00	.000	85	.12	123	66	6	.1	8.0
29...	12	1.0	.3	.00	.000	113	.15	24.4	93	2	.1	8.4
29...	--	--	--	.01	--	--	--	--	--	--	--	--
JULY												
10...	12	.5	.1	.00	.010	120	.16	17.2	100	4	.1	7.6
28...	13	.7	.0	.02	.000	124	.17	10.7	100	3	.1	7.9
AUG.												
09...	9.8	.7	.1	.00	.000	126	.17	4.08	110	0	.1	7.7
21...	--	--	--	.00	--	--	--	--	--	--	--	--
25...	10	.7	.1	.01	.000	128	.17	10.4	110	4	.1	7.7
SEP.												
05...	11	2.0	.1	.00	.000	137	.19	8.88	110	0	.1	7.7
25...	11	.9	.2	.00	.000	132	.18	7.84	110	3	.1	8.0
28...	--	--	--	.00	--	--	--	--	--	--	--	--

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)
OCT.							
14...	1700	8.0	2.5	225	10.4	8.1	113
NOV.							
12...	0745	2.0	-4.0	225	11.6	7.5	108
DEC.							
16...	1530	.0	-8.0	220	13.4	7.1	107
JAN.							
19...	1100	.0	1.0	200	11.6	8.0	110
FEB.							
18...	1400	1.0	14.0	230	11.6	7.5	107
MAR.							
23...	1030	2.0	3.0	180	11.2	7.7	66
APR.							
19...	1510	7.0	8.5	180	11.2	8.1	77
MAY							
23...	1545	9.5	18.0	140	9.4	7.0	58
JUNE							
29...	1445	15.0	24.0	200	8.2	8.1	85
AUG.							
21...	1330	13.5	23.0	225	8.8	8.1	89
SEP.							
28...	1515	5.5	4.0	226	11.0	8.0	90

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED BARIUM (BA) (UG/L)	DIS-SOLVED BERYL-LIUM (BE) (UG/L)	DIS-SOLVED BORON (B) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)
OCT. 14...	1700	20	100	0	400	0	20	0	0	2
JAN. 19...	1100	12	0	0	200	0	8	0	0	0
MAY 23...	1945	620	0	0	0	10	20	0	0	1
AUG. 21...	1330	31	10	0	0	0	10	0	0	1

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	5.0	3.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0
2	10.0	4.5	3.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0
3	10.0	5.5	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
4	---	---	3.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	2.0	0.0
5	12.0	6.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	3.0	0.5
6	11.0	6.0	3.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	3.0	0.5
7	12.0	6.5	3.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5
8	11.0	5.5	4.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.5
9	11.5	5.5	4.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.5
10	11.0	6.0	4.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.0
11	9.5	5.5	4.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	1.5
12	10.0	5.5	4.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	1.5
13	8.5	5.5	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	4.5	2.0
14	8.5	5.5	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	1.5
15	6.0	3.0	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	1.5
16	5.0	3.5	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	1.0
17	8.0	4.0	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.5
18	5.5	3.5	2.0	1.0	0.0	0.0	0.0	0.0	1.0	0.0	3.0	0.5
19	7.0	4.5	3.5	1.0	0.0	0.0	0.0	0.0	1.5	0.0	1.5	0.5
20	6.5	5.0	4.5	3.5	0.0	0.0	0.0	0.0	2.0	0.5	2.0	0.5
21	4.5	4.5	4.5	2.0	1.0	0.0	0.0	0.0	1.0	0.0	3.0	0.5
22	8.0	3.5	3.0	1.0	1.0	0.5	0.0	0.0	0.5	0.0	4.0	1.0
23	8.0	3.5	2.0	1.0	1.0	0.5	0.0	0.0	1.5	0.0	2.0	0.5
24	6.5	5.0	3.5	2.0	0.5	0.5	0.0	0.0	0.0	0.0	2.0	0.0
25	5.5	3.5	3.0	1.5	0.5	0.5	0.0	0.0	1.5	0.0	1.0	0.0
26	6.0	3.5	3.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.0
27	3.5	1.5	3.5	2.0	0.5	0.0	0.0	0.0	0.5	0.0	2.0	0.0
28	2.0	1.5	3.0	1.0	0.0	0.0	0.0	0.0	2.0	0.5	1.5	0.0
29	1.5	1.5	3.5	1.5	0.0	0.0	0.0	0.0	1.0	0.0	3.5	0.0
30	3.5	0.5	2.0	0.5	0.0	0.0	0.0	0.0	---	---	3.0	0.5
31	3.0	1.5	---	---	0.0	0.0	0.0	0.0	---	---	4.5	0.5
MONTH	12.0	0.5	4.5	0.5	1.0	0.0	0.0	0.0	2.0	0.0	5.5	0.0

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
OCT.										
14...	0	0	4	.4	3	7	0	180	.0	20
JAN.										
19...	14	4	0	.3	0	8	0	100	.8	20
MAY										
23...	2	0	0	.0	0	5	0	60	.6	30
AUG.										
21...	3	2	0	.0	2	3	1	100	.5	10

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	1.0	7.0	2.0	12.0	8.0	15.0	10.0	19.0	10.0	15.5	8.5
2	4.5	1.0	6.0	4.0	12.0	8.0	13.5	9.0	14.0	11.5	16.5	8.5
3	4.5	0.0	8.5	4.0	11.0	8.0	15.5	9.0	18.0	10.0	15.5	9.0
4	4.5	0.5	8.5	4.5	13.5	8.0	17.0	9.0	19.0	10.0	16.5	9.0
5	6.0	1.5	6.5	5.5	13.5	8.5	17.0	10.0	19.0	10.0	11.0	9.0
6	4.5	3.0	5.5	4.0	14.0	9.5	18.5	11.0	19.0	10.0	12.0	9.5
7	3.5	1.5	4.5	3.5	13.5	10.0	19.5	12.0	20.0	11.0	14.5	8.0
8	4.0	1.0	4.5	4.0	13.0	11.0	19.0	11.5	20.0	11.0	15.5	8.0
9	4.0	1.5	8.0	4.0	12.0	10.0	15.0	11.5	20.0	11.5	13.5	9.0
10	4.0	1.5	5.5	4.5	14.5	10.0	17.0	10.0	21.0	11.0	12.0	8.0
11	4.0	2.0	8.5	5.0	14.0	11.0	15.5	11.5	21.0	10.0	14.5	9.0
12	4.5	2.0	8.0	5.0	13.0	9.0	17.0	11.5	16.5	11.5	12.0	9.5
13	3.0	1.5	10.0	5.0	14.0	9.0	17.0	11.5	14.5	12.0	14.5	8.5
14	4.0	1.0	9.5	6.0	15.0	9.5	18.0	11.5	13.5	12.0	14.5	8.5
15	4.5	3.0	9.0	4.5	16.0	10.5	19.0	10.5	15.5	12.0	13.5	8.0
16	4.5	1.5	9.5	4.5	16.0	11.5	16.0	10.5	18.0	12.0	12.0	8.5
17	5.0	1.5	9.5	6.0	16.0	11.5	18.0	9.5	18.0	11.0	14.5	10.0
18	5.5	1.5	9.5	5.5	13.0	10.5	15.0	9.5	19.0	11.0	13.5	8.5
19	5.5	1.0	8.5	6.0	13.0	8.5	11.0	9.0	14.5	12.0	11.0	7.0
20	6.5	2.0	7.0	5.5	14.5	9.5	10.5	9.5	16.5	11.5	11.0	6.5
21	5.5	2.0	9.5	5.5	14.0	10.0	13.0	9.5	18.5	10.5	11.0	6.0
22	5.5	1.0	7.0	5.0	14.5	9.0	15.5	9.5	15.0	11.0	12.0	6.5
23	6.5	1.0	10.0	5.0	13.0	10.5	18.0	9.5	14.0	11.0	9.0	6.0
24	6.0	3.0	8.5	6.0	13.5	9.5	16.0	10.5	16.5	10.5	8.0	5.5
25	7.0	3.5	7.0	5.0	14.0	9.5	18.5	10.5	18.0	10.0	9.0	5.5
26	7.0	3.0	6.5	5.5	14.0	9.5	19.5	10.5	18.5	10.0	10.0	4.5
27	8.5	3.5	9.0	5.5	10.5	9.5	18.5	12.0	19.0	10.0	8.5	5.5
28	8.5	4.0	11.0	6.0	16.5	9.5	19.5	10.5	19.0	10.0	7.0	5.0
29	6.0	3.0	12.0	8.0	17.0	10.5	19.5	10.5	19.0	10.0	9.0	4.0
30	5.0	2.0	13.0	8.0	17.0	10.5	15.5	11.0	18.0	11.0	10.0	4.5
31	---	---	12.0	8.0	---	---	18.0	11.0	15.5	9.0	---	---
MONTH	8.5	0.0	13.0	2.0	17.0	8.0	19.5	9.0	21.0	9.0	16.5	4.0
YEAR	21.0	0.0										

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C), WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	221	---	247	---	---	---	---	150	138	196	---	217
2	---	238	---	---	246	234	---	---	---	---	208	---
3	---	---	241	---	---	234	184	165	---	194	---	---
4	221	232	---	---	236	226	---	---	---	---	213	---
5	---	---	---	---	233	---	212	148	---	---	---	232
6	222	238	235	239	---	---	---	---	152	196	---	---
7	---	---	---	239	---	---	---	---	152	---	216	---
8	227	232	241	239	---	223	165	---	---	199	---	227
9	---	---	---	---	227	223	---	156	---	---	227	---
10	222	227	---	233	---	---	174	---	180	199	---	---
11	---	---	249	---	238	---	---	159	---	---	227	232
12	233	232	---	---	236	---	174	158	162	204	---	---
13	---	---	---	246	---	---	---	---	---	---	---	220
14	222	---	---	---	---	---	---	---	---	208	224	---
15	---	227	230	---	---	209	180	120	171	208	---	224
16	221	---	230	---	---	---	---	122	---	---	220	---
17	---	238	235	233	227	172	---	---	173	208	---	---
18	233	232	228	---	227	180	180	---	---	---	224	224
19	---	---	---	220	238	---	180	---	---	201	---	---
20	218	232	232	---	---	167	183	134	---	---	---	224
21	---	---	---	---	---	---	---	---	181	201	224	---
22	221	---	235	233	---	173	175	134	183	---	---	222
23	---	232	---	---	227	---	---	---	---	---	217	---
24	---	---	235	---	236	167	---	138	184	215	---	---
25	---	---	---	---	---	---	172	---	---	---	220	224
26	221	232	---	---	---	---	162	144	---	215	---	---
27	---	230	---	246	246	183	---	---	188	---	---	224
28	240	---	---	246	---	---	---	---	---	218	224	224
29	---	232	232	239	---	---	140	---	192	---	---	224
30	233	---	235	---	---	183	---	---	190	---	224	---
31	---	---	235	---	---	184	---	166	---	218	---	---
MONTH	---	---	---	---	---	---	---	---	---	---	---	---

12352980 BITTERROOT RIVER AT MACLAY BRIDGE, NEAR MISSOULA, MONT.

LOCATION.--Lat 46°51'12", long 114°05'48", in SE¼NW¼SW¼ sec.26, T.13 N., R.20 W., Missoula County, at Maclay Bridge on county road 1.5 miles upstream from mouth, and 5.2 miles west of the Missoula Post Office.

DRAINAGE AREA.--2,850 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
14...	0945	970	26	--	1.8	--	--	.2	--	--	--	90
NOV.												
18...	0930	880	--	--	--	--	--	.0	--	--	--	--
DEC.												
09...	1200	620	--	--	--	--	--	.2	--	--	--	--
JAN.												
06...	0900	400	22	--	1.9	--	--	.2	--	--	--	77
FEB.												
15...	1700	960	--	--	--	--	--	.0	--	--	--	--
MAR.												
21...	0830	3950	--	--	--	--	--	.2	--	--	--	--
APR.												
17...	1700	2660	14	--	1.4	--	--	.3	--	--	--	53
MAY												
16...	1530	12000	6.5	1.8	1.0	3.7	.7	.1	53	.07	1720	21
JUNE												
13...	1530	21500	--	--	--	--	--	.2	--	--	--	--
JULY												
20...	0930	3640	4.7	3.3	--	6.6	1.0	.1	67	.09	658	22
AUG.												
24...	0930	1030	23	6.4	--	7.7	2.1	.2	134	.18	373	80
SEP.												
20...	1845	1070	25	7.1	--	8.3	1.9	.2	128	.17	370	86

12334650 BLACKFOOT RIVER BELOW ALICE CREEK, NEAR LINCOLN, MONT.--Continued

SUSPENDED-SEDIMENT FOR SELECTED DAYS, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM
OCT.							
14...	1810	8.0	20	14	.76	--	--
NOV.							
12...	0945	2.0	17	2	.09	--	--
DEC.							
16...	1510	.0	19	3	.15	--	--
JAN.							
19...	1620	.0	13	4	.14	--	--
FEB.							
18...	1320	1.0	14	1	.04	--	--
MAR.							
23...	1030	2.0	137	4	1.5	--	--
APR.							
19...	1500	7.0	111	2	.60	--	--
MAY							
10...	1125	4.5	227	5	3.1	--	--
16...	1015	4.5	900	249	605	17	31
29...	1500	5.0	631	61	104	--	--
JUNE							
10...	1500	--	248	10	6.7	--	--
29...	1320	15.0	76	2	.41	--	--
AUG.							
21...	1310	13.5	31	2	.17	--	--
SEP.							
28...	1430	5.5	23	3	.19	--	--

DATE	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM	SUS. SED. SIEVE DIAM. % FINER THAN .125 MM	SUS. SED. SIEVE DIAM. % FINER THAN .250 MM	SUS. SED. SIEVE DIAM. % FINER THAN .500 MM	SUS. SED. SIEVE DIAM. % FINER THAN 1.00 MM	SUS. SED. SIEVE DIAM. % FINER THAN 2.00 MM
MAY						
16...	54	66	79	91	96	100

12352980 BITTERROOT RIVER AT MACLAY BRIDGE, NEAR MISSOULA, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1970 to September 1972.

REMARKS.--Water discharge computed by subtracting the discharge of Clark Fork above Missoula, Mont. (station 12340500) from that of Clark Fork below Missoula, Mont. (station 12353000). Flow affected by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.												
14...	0	5	0	0	0	0	20	0	6.0	.0	5	10
NOV.												
18...	1	3	--	--	--	--	20	--	--	.0	--	0
DEC.												
09...	1	5	--	--	--	--	10	--	--	.3	--	30
JAN.												
06...	1	0	2	0	4	1	20	1	5.3	.2	1	20
FEB.												
15...	3	5	--	--	--	--	20	--	--	.2	--	10
MAR.												
21...	10	20	--	--	--	--	70	--	--	.0	--	20
APR.												
17...	3	20	1	0	0	2	60	0	4.3	.2	0	10
MAY												
16...	--	--	--	--	--	--	40	--	1.1	--	--	--
JUNE												
13...	13	20	--	--	--	--	80	--	--	.0	--	8
JULY												
20...	--	--	--	--	--	--	--	--	2.5	--	--	--
AUG.												
24...	--	--	--	--	--	--	--	--	5.6	--	--	--
SEP.												
20...	--	--	--	--	--	--	--	--	5.7	--	--	--

12352980 BITTERROOT RIVER AT MACLAY BRIDGE, NEAR MISSOULA, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.												
14...	0945	.10	.08	.02	.12	.22	.14	.050	.080	.090	.0	2.3
NOV.												
18...	0930	--	--	--	--	--	--	--	--	--	--	2.1
DEC.												
09...	1200	--	--	--	--	--	--	--	--	--	--	1.3
JAN.												
06...	0900	.17	.17	.06	.26	.49	.32	.020	.010	.040	2.0	1.9
FEB.												
15...	1700	--	--	--	--	--	--	--	--	--	--	1.5
MAR.												
21...	0830	--	--	--	--	--	--	--	--	--	--	1.1
APR.												
17...	1700	.01	.01	.03	.18	.22	.21	.000	.000	.050	1.0	1.6
MAY												
16...	1530	--	.08	--	--	--	--	.020	.000	--	--	2.1
JUNE												
13...	1530	--	--	--	--	--	--	--	--	--	--	1.2
JULY												
20...	0930	--	.02	--	--	.13	.11	.030	.000	.040	--	1.4
AUG.												
24...	0930	--	--	--	--	--	--	--	--	--	--	1.5
SEP.												
20...	1845	--	--	--	--	--	--	--	--	--	--	1.4

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
14...	0945	8.0	1.5	260	11.6	7.4	94	52	2
NOV.									
18...	0930	4.0	-1.0	210	12.2	7.4	84	1600	90
DEC.									
09...	1200	.0	2.5	185	13.6	7.2	89	1600	0
JAN.									
06...	0900	.0	3.0	190	12.0	7.0	85	13	0
FEB.									
15...	1700	2.5	1.5	180	11.6	7.4	74	--	--
16...	0745	--	--	--	--	--	--	57	6
MAR.									
21...	0830	5.0	9.0	105	11.0	6.6	42	150	26
APR.									
17...	1700	6.5	12.0	118	11.6	7.2	51	150	5
MAY									
16...	1530	10.0	25.5	50	9.6	6.7	20	4600	310
JUNE									
13...	1530	11.0	21.0	60	9.4	6.4	25	490	130
JULY									
20...	0930	10.5	12.0	100	9.2	6.2	41	490	42
AUG.									
24...	0930	14.5	16.5	200	8.8	7.4	75	160	68
SEP.									
20...	1845	12.5	13.0	195	10.4	7.2	79	32	14

DATE	TIME	DIS-CHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAG-NE-SIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
14...	0945	970	1	1	1	1	50	9	--	.0	10
JAN.											
06...	0900	400	2	<1	4	1	40	3	--	.3	20
APR.											
17...	1700	2660	1	1	10	5	270	6	4.3	--	20

12359800 SOUTH FORK FLATHEAD RIVER ABOVE TWIN CREEK, NEAR HUNGRY HORSE, MONT.

LOCATION.--Lat 47°58'45", long 113°33'36", in NE¼NW¼NE¼ sec.36, T.26 N., R.16 W., Flathead County, Flathead National Forest, temperature recorder at gaging station on left bank 0.1 mile downstream from Tin Creek, 0.4 mile upstream from Twin Creek, 36.3 miles southeast of Hungry Horse, and at mile 46.7.

DRAINAGE AREA.--1,160 sq mi.

PERIOD OF RECORD.--Water temperatures: May 1965 to September 1972.

EXTREMES.--1971-72:
Water temperatures: Maximum, 16.5°C Aug. 28, 29; minimum freezing point on many days during October to March.

Period of record:
Water temperatures: Maximum, 19.0°C Aug. 17-19, 1967; minimum, freezing point on many days during winter periods most years.

REMARKS.--No regulation or diversion of flow upstream from station.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.5	5.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	7.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	8.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
5	9.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
6	9.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
7	9.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
8	8.5	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
9	8.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
10	8.0	6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	7.5	6.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	7.0	5.5	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	6.5	6.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6.0	5.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	5.5	4.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
16	4.0	3.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.0
17	4.0	2.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0
18	3.0	2.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
19	3.0	2.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.0
20	4.0	3.0	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.5
21	4.5	3.0	3.0	2.5	0.0	0.0	0.0	0.0	0.5	0.0	3.0	2.0
22	4.0	2.5	2.5	2.0	0.0	0.0	0.0	0.0	0.5	0.0	4.0	2.5
23	3.5	2.5	2.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	3.5	3.0
24	4.0	3.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	3.0	2.0
25	4.0	3.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	2.5	2.0
26	4.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.0	2.0	1.5
27	3.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.5
28	1.5	0.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0
29	0.5	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	2.0
30	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	---	---	4.0	2.5
31	0.0	0.0	---	---	0.0	0.0	0.0	0.0	---	---	4.5	3.0
MONTH	9.5	0.0	3.0	0.0	1.0	0.0	0.0	0.0	0.5	0.0	4.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.0	3.0	5.0	3.0	5.5	4.5	---	---	13.0	12.0	14.0	12.0
2	4.0	2.5	4.5	4.0	5.5	4.0	---	---	13.0	11.0	14.0	11.5
3	4.0	2.0	5.0	4.0	5.5	5.0	---	---	13.0	10.5	14.0	11.0
4	4.0	2.5	5.0	4.0	6.0	5.0	---	---	13.5	12.0	14.0	11.0
5	4.5	3.0	5.0	4.0	6.5	5.0	---	---	14.0	12.5	13.0	11.5
6	4.0	3.5	4.0	3.5	6.5	5.0	---	---	15.0	13.0	12.0	11.0
7	4.0	3.0	4.0	3.0	6.0	5.0	---	---	15.5	13.5	12.0	10.0
8	3.0	2.0	4.0	3.5	6.0	5.0	---	---	16.0	14.0	12.0	10.0
9	3.0	2.5	4.0	3.5	6.0	5.0	---	---	16.0	14.5	12.0	10.0
10	3.0	2.0	5.0	4.0	6.0	5.0	---	---	16.0	14.0	11.0	9.0
11	3.0	3.0	5.0	4.0	6.0	5.0	---	---	15.0	13.5	11.0	8.5
12	4.0	3.0	6.0	4.5	5.5	4.5	---	---	16.0	14.0	11.0	10.0
13	4.0	3.5	6.0	4.0	6.0	4.5	10.5	10.0	15.0	13.5	12.0	10.0
14	3.5	3.5	6.0	4.0	7.0	5.0	11.0	10.0	13.5	12.5	12.0	10.0
15	3.5	3.0	5.0	4.0	7.5	6.0	11.5	10.0	13.5	12.0	12.0	10.0
16	4.0	3.0	4.5	3.0	7.5	6.0	11.5	10.5	14.0	12.0	11.0	10.0
17	3.5	3.0	4.5	3.0	7.0	6.0	11.0	9.0	15.5	13.0	12.0	10.0
18	4.0	2.0	4.0	3.0	7.0	6.0	11.0	9.5	16.0	13.5	12.0	10.0
19	5.0	3.0	4.0	3.0	6.5	5.0	9.5	8.5	16.0	14.0	11.5	9.5
20	5.5	4.0	3.5	3.0	6.5	5.5	9.0	8.5	16.0	13.5	9.5	8.5
21	4.5	4.0	4.0	3.0	6.5	6.0	9.5	8.5	15.0	13.5	9.0	7.5
22	4.5	3.0	4.0	3.0	6.5	6.0	10.0	9.0	14.0	12.5	9.0	8.0
23	6.0	3.0	4.0	3.0	---	---	11.0	9.5	13.0	12.0	8.5	7.0
24	6.0	4.0	4.0	3.0	---	---	12.0	11.0	14.0	11.5	7.5	7.0
25	5.5	4.5	4.0	3.0	---	---	13.0	11.0	15.0	12.0	7.5	6.5
26	6.0	4.0	4.5	4.0	---	---	13.0	12.0	16.0	12.5	8.0	6.0
27	6.0	4.0	6.0	3.5	---	---	13.5	12.0	16.0	13.0	7.0	5.5
28	6.0	4.0	6.5	4.5	---	---	13.5	12.5	16.5	13.5	6.5	5.5
29	5.5	3.5	6.5	4.5	---	---	13.5	12.0	16.5	13.5	7.0	5.0
30	4.0	3.0	6.0	4.5	---	---	14.0	13.0	16.0	14.0	8.0	5.0
31	---	---	5.5	4.5	---	---	14.0	13.0	14.5	13.0	---	---
MONTH	6.0	2.0	6.5	3.0	---	---	---	---	16.5	10.5	14.0	5.0
YEAR	14.5	0.0										

12388700 FLATHEAD RIVER AT PERMA, MONT.

LOCATION.--Lat 47°22'01", long 114°35'03", in NW¼SW¼NW¼ sec.31, T.19 N., R.23 W., Sanders County, on upstream side of bridge on State Highway 382, at Perma, and at mile 10.9.

DRAINAGE AREA.--8,795 sq mi.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
13...	1200	7160	25	--	.6	--	--	.1	--	--	--	90
NOV.												
10...	1130	11100	--	--	--	--	--	.1	--	--	--	--
DEC.												
15...	1230	13700	--	--	--	--	--	.0	--	--	--	--
JAN.												
07...	1230	13800	25	--	.5	--	--	.1	--	--	--	88
FEB.												
10...	1230	13000	--	--	--	--	--	.1	--	--	--	--
MAR.												
15...	1200	14400	--	--	--	--	--	.1	--	--	--	--
APR.												
13...	1200	20400	28	--	.4	--	--	.1	--	--	--	97
MAY												
03...	1100	18700	--	--	--	--	--	.0	--	--	--	--
JUNE												
09...	1200	50300	--	--	--	--	--	.0	--	--	--	--
JULY												
11...	1230	18800	24	1.3	--	4.3	.6	.0	82	.11	4160	82
AUG.												
17...	1330	8100	25	2.0	--	4.6	.8	.1	114	.16	2490	87
SEP.												
20...	1500	7160	25	2.1	--	4.3	1.3	.1	110	.15	2130	89

DATE	TIME	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOL-VED-PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.												
13...	1200	.21	.21	.02	.15	.38	.17	.060	.000	.080	.0	1.0
NOV.												
10...	1130	--	--	--	--	--	--	--	--	--	--	1.6
DEC.												
15...	1230	--	--	--	--	--	--	--	--	--	--	1.3
JAN.												
07...	1230	.02	.02	.06	.26	.34	.32	.010	.000	.020	1.0	1.2
FEB.												
10...	1230	--	--	--	--	--	--	--	--	--	--	1.2
MAR.												
15...	1200	--	--	--	--	--	--	--	--	--	--	1.1
APR.												
13...	1200	.00	.00	.08	.01	.09	.09	.010	.000	.020	.0	1.3
MAY												
03...	1100	--	--	--	--	--	--	--	--	--	--	1.0
JUNE												
09...	1200	--	--	--	--	--	--	--	--	--	--	.8
JULY												
11...	1230	--	.00	--	--	.11	.11	.020	.000	.020	--	.9
AUG.												
17...	1330	--	--	--	--	--	--	--	--	--	--	2.0
SEP.												
20...	1500	--	--	--	--	--	--	--	--	--	--	1.5

12388700 FLATHEAD RIVER AT PERMA, MONT.--Continued

PERIOD OF RECORD.--Chemical analyses: July 1971 to September 1972.

REMARKS.--Water discharge computed by subtracting the discharge of Clark Fork at St. Regis, Mont. (station 12354500) from that of Clark Fork near Plains, Mont. (station 12389000). Flow affected by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT.												
13...	20	5	2	0	0	1	10	0	6.6	.2	4	0
NOV.												
10...	1	0	--	--	--	--	0	--	--	.2	--	30
DEC.												
15...	1	5	--	--	--	--	0	--	--	.3	--	0
JAN.												
07...	1	0	5	0	0	0	0	1	6.2	.3	1	10
FEB.												
10...	1	0	--	--	--	--	0	--	--	.7	--	8
MAR.												
15...	5	5	--	--	--	--	0	--	--	.3	--	10
APR.												
13...	3	8	0	0	0	1	10	3	6.5	.2	0	8
MAY												
03...	4	0	--	--	--	--	10	--	--	.1	--	8
JUNE												
09...	7	10	--	--	--	--	10	--	--	.1	--	8
JULY												
11...	--	--	--	--	--	--	--	--	5.6	--	--	--
AUG.												
17...	--	--	--	--	--	--	--	--	6.0	--	--	--
SEP.												
20...	--	--	--	--	--	--	--	--	6.4	--	--	--

FIELD DETERMINATIONS

DATE	TIME	TEMPERATURE (DEG C)	AIR TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED OXYGEN (MG/L)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)
OCT.									
13...	1200	11.5	9.0	190	10.2	7.8	91	25	3
NOV.									
10...	1130	4.5	16.0	185	12.6	7.3	86	22	1
DEC.									
15...	1230	.5	-2.0	190	13.2	7.7	88	32	1
JAN.									
07...	1230	1.0	4.0	185	13.4	8.1	87	86	4
FEB.									
10...	1230	.0	2.0	185	13.2	8.1	87	15	2
MAR.									
15...	1200	4.5	14.5	185	12.2	8.1	87	47	16
APR.									
13...	1200	4.5	.0	180	12.0	8.1	87	4	1
MAY									
03...	1100	7.0	13.0	185	11.6	8.2	85	10	23
JUNE									
09...	1200	15.0	29.5	175	9.8	8.3	82	270	17
JULY									
11...	1230	17.5	18.5	170	9.0	8.0	86	27	12
AUG.									
17...	1330	21.0	29.0	180	8.0	7.9	75	17	17
SEP.									
20...	1500	14.0	12.5	175	9.6	8.2	77	28	7

DATE	TIME	DISCHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAGNESIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
13...	1200	7160	2	2	10	1	40	5	--	.2	20
JAN.											
07...	1230	13800	5	<1	7	<1	30	3	--	.3	10
APR.											
13...	1200	20400	0	0	10	20	140	8	6.5	--	8

12389000 CLARK FORK NEAR PLAINS, MONT.

LOCATION.--Lat 47°25'47", long 114°51'18", E½SW¼ sec.1, T.19 N., R.26 W., Sanders County, temperature recorder at gaging station 2.4 miles southeast of Plains, 6.0 miles downstream from Flathead River, and at mile 239.0.

DRAINAGE AREA.--19,958 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1969 to June 1970.
Water temperatures: November 1968 to September 1972.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.5	12.0	5.0	5.0	4.0	3.5	0.0	0.0	0.0	0.0	2.5	2.5
2	12.5	12.0	5.0	5.0	3.5	3.0	0.0	0.0	0.0	0.0	2.5	2.0
3	12.5	12.0	5.0	5.0	3.0	3.0	0.0	0.0	0.0	0.0	2.5	2.0
4	13.0	12.0	5.0	5.0	3.0	3.0	0.0	0.0	0.0	0.0	2.5	2.0
5	13.5	13.0	5.0	3.5	3.0	3.0	0.0	0.0	0.0	0.0	2.0	2.0
6	13.5	13.5	3.5	3.5	3.0	3.0	0.0	0.0	0.0	0.0	3.0	2.0
7	14.0	13.5	3.5	3.5	3.0	1.5	0.0	0.0	0.0	0.0	3.5	2.5
8	14.0	13.5	4.0	3.5	1.5	1.0	0.0	0.0	0.0	0.0	3.5	2.5
9	14.0	14.0	4.5	4.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.5
10	14.0	13.5	4.5	4.5	1.5	1.0	0.0	0.0	0.0	0.0	3.5	3.0
11	14.0	13.5	5.0	4.5	1.5	1.0	0.0	0.0	0.0	0.0	3.5	3.5
12	13.5	13.0	5.0	5.0	1.0	0.5	0.0	0.0	0.0	0.0	4.0	3.5
13	13.0	12.5	5.0	4.5	0.5	0.5	0.0	0.0	0.0	0.0	4.0	3.5
14	12.5	11.5	5.0	5.0	1.0	0.5	0.0	0.0	0.0	0.0	4.0	4.0
15	11.5	11.0	5.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	4.0	4.0
16	11.0	10.5	5.0	5.0	1.0	0.5	0.0	0.0	0.5	0.0	4.5	4.0
17	10.5	10.0	5.0	4.5	1.5	1.0	0.0	0.0	1.0	0.5	5.0	4.5
18	10.0	10.0	4.5	4.5	2.0	1.5	0.5	0.0	1.0	1.0	5.5	5.0
19	10.0	9.5	4.5	4.5	2.0	1.5	1.0	0.5	1.5	1.0	5.5	5.0
20	9.5	9.5	5.0	4.5	1.5	1.5	1.0	0.5	2.0	1.5	5.0	4.5
21	9.5	9.0	5.0	4.5	1.5	1.5	1.5	1.0	2.0	2.0	5.0	4.5
22	9.0	9.0	4.5	4.5	1.5	1.5	1.5	1.0	2.0	2.0	5.0	4.5
23	9.0	9.0	4.5	4.0	1.5	1.5	1.5	1.0	2.0	1.5	5.0	5.0
24	9.0	9.0	4.0	4.0	1.5	1.0	1.0	1.0	1.5	1.5	5.0	4.5
25	9.0	8.5	4.0	4.0	1.5	1.0	1.0	0.5	1.5	1.5	5.0	4.5
26	8.5	8.5	4.0	4.0	1.5	0.5	0.5	0.5	1.5	1.5	4.5	3.5
27	8.5	7.0	4.0	4.0	0.5	0.5	0.5	0.5	2.0	1.5	4.0	3.5
28	7.0	5.5	4.0	4.0	0.5	0.0	0.5	0.0	3.0	2.0	4.5	4.0
29	5.5	5.0	4.0	4.0	0.0	0.0	0.0	0.0	3.0	2.5	4.5	4.0
30	5.0	5.0	4.0	4.0	0.0	0.0	0.0	0.0	---	---	5.0	4.0
31	5.0	5.0	---	---	0.0	0.0	0.0	0.0	---	---	5.0	5.0
MONTH	14.0	5.0	5.0	3.5	4.0	0.0	1.5	0.0	3.0	0.0	5.5	2.0

12391000 CLARK FORK AT THOMPSON FALLS, MONT.

LOCATION.--Lat 47°36'17", long 115°22'30", in NE¼SE¼ sec.1, T.21 N., R.30 W., Sanders County, at bridge on U.S. Highway 10A, 1 mile west of Thompson Falls, 1.3 miles downstream from former gaging station, 6.5 miles downstream from Thompson River, and at mile 206.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)
OCT.												
13...	0830	10700	30	---	.9	---	---	.2	---	---	---	110
NOV.												
10...	0830	15400	---	---	---	---	---	.2	---	---	---	---
DEC.												
15...	0900	16600	---	---	---	---	---	.1	---	---	---	---
JAN.												
07...	0830	17500	30	---	1.0	---	---	.1	---	---	---	100
FEB.												
10...	0830	15400	---	---	---	---	---	.2	---	---	---	---
MAR.												
15...	0830	24500	---	---	---	---	---	.2	---	---	---	---
APR.												
13...	0830	33500	27	---	.7	---	---	.1	---	---	---	95
MAY												
03...	0800	34000	---	---	---	---	---	.1	---	---	---	---
JUNE												
09...	0830	115000	---	---	---	---	---	.1	---	---	---	---
JULY												
11...	0930	34000	22	2.5	---	7.8	.8	.1	88	.12	8080	77
AUG.												
17...	1100	13000	28	3.2	---	11	1.0	.2	126	.17	4420	99
SEP.												
20...	1300	11000	30	3.9	---	16	1.8	.2	150	.20	4460	110

12389000 CLARK FORK NEAR PLAINS, MONT.--Continued

EXTREMES.--1971-72:
Water temperatures: Maximum, 23.0°C Aug. 8-10; minimum, freezing point on many days during December to January.

Period of record:
Water temperatures: Maximum, 23.0°C Aug. 9, 10, 1971, Aug. 8-10, 1972; minimum, freezing point on many days during winter periods most years.

REMARKS.--Flow affected by reservoirs and diversions for irrigation upstream from station.

TEMPERATURE (°C) OF WATER, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972
(CONTINUOUS THERMOGRAPH)

DAY	APRIL MAX	APRIL MIN	MAY MAX	MAY MIN	JUNE MAX	JUNE MIN	JULY MAX	JULY MIN	AUGUST MAX	AUGUST MIN	SEPTEMBER MAX	SEPTEMBER MIN
1	5.5	5.0	8.5	8.0	14.0	13.0	16.5	16.0	20.5	20.0	20.5	19.5
2	5.5	5.5	8.5	8.0	14.5	14.0	16.0	15.5	20.5	20.0	20.0	19.0
3	5.5	5.0	8.5	8.0	14.5	14.0	16.0	15.5	20.0	20.0	20.0	19.0
4	5.5	5.5	9.0	8.5	14.0	14.0	17.0	16.0	21.0	20.0	20.0	19.0
5	5.5	5.5	9.5	9.0	15.0	14.0	17.5	17.0	21.0	20.5	20.0	19.0
6	6.0	5.5	9.5	9.0	15.0	15.0	18.0	17.5	21.0	20.5	19.0	17.0
7	6.0	6.0	9.0	9.0	15.5	15.0	18.5	18.0	22.0	21.0	17.0	16.5
8	6.0	5.5	9.0	8.0	16.0	15.5	19.0	18.5	23.0	21.5	17.0	16.0
9	5.5	5.0	8.0	8.0	16.0	16.0	19.0	18.5	23.0	22.0	18.0	16.5
10	5.5	5.0	8.5	8.0	17.0	16.0	18.5	18.0	23.0	22.0	17.0	16.5
11	5.5	5.0	8.5	8.5	17.0	16.5	18.0	18.0	22.5	22.0	17.0	16.5
12	5.5	5.5	9.0	8.5	16.5	15.5	18.0	17.5	22.5	22.0	17.0	16.5
13	5.5	5.5	10.0	9.0	15.5	12.5	18.5	18.0	22.5	21.5	16.5	16.0
14	5.5	5.0	10.5	10.0	12.5	11.5	18.5	18.0	22.0	21.5	16.5	15.5
15	5.5	5.0	10.5	10.5	12.0	11.5	19.0	18.5	21.5	21.0	17.0	16.0
16	5.5	5.5	10.5	10.5	13.0	12.0	19.0	19.0	21.0	20.5	16.5	16.0
17	5.5	5.0	10.5	10.5	14.0	13.0	19.0	18.5	21.5	21.0	16.5	16.0
18	5.0	5.0	10.5	10.5	14.5	14.0	19.0	18.5	21.5	20.5	17.0	16.5
19	6.0	5.0	10.5	10.5	15.0	14.5	18.5	17.0	21.5	20.5	17.0	16.0
20	6.0	6.0	10.5	10.5	15.0	14.5	17.0	16.5	21.5	21.0	16.0	14.5
21	7.0	6.0	10.5	10.5	15.5	15.0	16.5	16.0	22.0	21.0	14.5	14.5
22	7.0	7.0	10.5	10.0	15.5	15.0	17.0	16.0	21.5	20.0	14.5	14.0
23	7.0	7.0	10.0	10.0	15.5	15.5	17.5	16.5	20.0	19.0	14.0	13.0
24	7.0	7.0	10.5	10.0	15.5	15.5	18.0	17.5	20.0	18.5	13.0	12.5
25	7.5	7.0	10.0	10.0	15.5	15.5	18.5	18.0	21.0	19.0	12.5	12.0
26	8.0	7.5	10.0	10.0	15.5	15.0	19.0	18.5	21.5	20.0	12.5	12.0
27	8.5	8.0	10.5	10.0	15.0	15.0	20.0	19.0	22.0	20.5	12.0	12.0
28	9.0	8.5	11.0	10.5	15.5	15.0	20.5	20.0	22.5	21.0	12.0	11.0
29	9.0	8.5	12.0	11.0	16.0	15.5	20.5	20.5	22.5	21.5	11.0	10.5
30	8.5	8.0	13.0	12.0	16.5	16.0	21.5	20.5	22.0	21.5	11.5	11.0
31	---	---	13.0	13.0	---	---	21.5	20.0	21.5	20.5	---	---
MONTH	9.0	5.0	13.0	8.0	17.0	11.5	21.5	15.5	23.0	18.5	20.5	10.5
YEAR	23.0	0.0										

12391000 CLARK FORK AT THOMPSON FALLS, MONT.--Continued

DRAINAGE AREA.--21,113 sq mi.

PERIOD OF RECORD.--Chemical analyses: July 1969 to September 1972.

REMARKS.--Discharge records furnished by the Montana Power Co. Flow affected by reservoirs and diversions for irrigation upstream from station.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TURBIDITY (JTU)	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
OCT. 13...	20	5	0	3	0	1	10	0	7.4	.2	4	10
NOV. 10...	1	0	---	---	---	---	0	---	---	.4	---	50
DEC. 15...	1	0	---	---	---	---	0	---	---	.3	---	20
JAN. 07...	2	0	1	0	1	1	0	0	6.8	.2	2	10
FEB. 10...	1	0	---	---	---	---	20	---	---	.5	---	20
MAR. 15...	10	5	---	---	---	---	20	---	---	.7	---	10
APR. 13...	5	10	0	0	0	1	20	2	6.6	.3	0	20
MAY 03...	7	5	---	---	---	---	20	---	---	.3	---	20
JUNE 09...	30	20	---	---	---	---	30	---	---	.1	---	0
JULY 11...	---	---	---	---	---	---	---	---	5.4	---	---	---
AUG. 17...	---	---	---	---	---	---	---	---	7.0	---	---	---
SEP. 20...	---	---	---	---	---	---	---	---	7.6	---	---	---

12391000 CLARK FORK AT THOMPSON FALLS, MONT.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-SOLVED NITRATE (N) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED AMMONIA NITRO-GEN (N) (MG/L)	ORGANIC NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC CARBON (C) (MG/L)	BIO-CHEM-ICAL OXYGEN DEMAND (MG/L)
OCT.												
13...	0830	.00	.01	.01	.16	.18	.17	.070	.010	.080	2.0	1.5
NOV.												
10...	0830	--	--	--	--	--	--	--	--	--	--	1.2
DEC.												
15...	0900	--	--	--	--	--	--	--	--	--	--	2.3
JAN.												
07...	0830	.05	.05	.06	.36	.47	.42	.010	.000	.020	2.0	1.0
FEB.												
10...	0830	--	--	--	--	--	--	--	--	--	--	1.2
MAR.												
15...	0830	--	--	--	--	--	--	--	--	--	--	1.4
APR.												
13...	0830	.00	.00	.10	.07	.17	.17	.010	.000	.040	.0	1.5
MAY												
03...	0800	--	--	--	--	--	--	--	--	--	--	2.2
JUNE												
09...	0830	--	--	--	--	--	--	--	--	--	--	1.1
JULY												
11...	0930	--	.01	--	--	.09	.08	.020	.000	.020	--	1.3
AUG.												
17...	1100	--	--	--	--	--	--	--	--	--	--	2.6
SEP.												
20...	1300	--	--	--	--	--	--	--	--	--	--	1.7

FIELD DETERMINATIONS

DATE	TIME	TEMPER-ATURE (DEG C)	AIR TEMP-ERATURE (DEG C)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	DIS-SOLVED OXYGEN (MG/L)	PH (UNITS)	ALKA-LINITY AS CACO3 (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)
OCT.									
13...	0830	11.5	8.5	230	10.6	8.1	95	12	4
NOV.									
10...	0830	3.5	.5	230	13.0	7.7	94	30	2
DEC.									
15...	0900	.0	-4.5	195	14.4	8.0	94	44	1
JAN.									
07...	0830	.0	1.0	220	13.8	7.8	90	20	1
FEB.									
10...	0830	.0	-1.5	225	13.6	7.5	90	15	0
MAR.									
15...	0830	5.5	3.5	180	12.6	7.9	75	54	20
APR.									
13...	0830	5.5	-1.0	195	12.0	7.7	80	10	1
MAY									
03...	0800	8.0	5.0	175	11.4	7.8	77	12	6
JUNE									
09...	0830	14.0	22.0	140	10.2	7.7	62	330	55
JULY									
11...	0930	16.0	15.0	160	9.8	7.8	75	38	8
AUG.									
17...	1100	19.5	18.5	210	8.8	7.8	81	10	6
SEP.									
20...	1300	14.5	11.0	210	9.6	8.5	85	25	0

DATE	TIME	DIS-CHARGE (CFS)	TOTAL ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MAG-NE-SIUM (MG) (MG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
OCT.											
13...	0830	10700	1	3	3	2	20	8	--	.2	10
JAN.											
07...	0830	17500	1	<1	3	1	110	8	--	.2	20
APR.											
13...	0830	33500	0	0	0	20	270	10	6.6	--	40

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD WATER-QUALITY STATIONS

MARIAS RIVER BASIN

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
06091852 - MISSION LAKE NR. BLACKFOOT, MONT. (LAT 48 33 48 LONG 112 37 49)												
OCT., 1971												
29...	1600	--	--	1.8	0	39	29	61	2.7	163	0	210
MAY , 1972												
11...	0900	--	7.0	1.6	20	47	31	60	4.6	183	0	210
JUNE												
27...	1140	--	15.5	3.0	20	43	32	58	3.2	187	1	220
JULY												
26...	1335	--	22.0	3.8	20	40	29	55	2.7	166	0	200
AUG.												
29...	1120	--	22.0	3.4	10	37	27	50	2.4	150	0	190
MILK RIVER BASIN												
06174500 - MILK RIVER AT NASHUA, MONT. (LAT 48 07 52 LONG 106 21 50)												
APR., 1972												
20...	1315	260	9.5	3.9	30	48	20	100	6.7	166	0	260
MAY												
15...	1430	418	17.0	3.6	20	50	24	96	6.5	213	0	250
JUNE												
27...	1730	1240	21.0	8.5	240	47	20	74	6.9	202	0	190
JULY												
19...	1000	291	20.5	6.9	30	58	25	110	6.5	269	0	240
AUG.												
17...	1430	406	25.0	7.2	20	55	23	110	6.9	220	0	270
SEP.												
21...	1100	217	11.5	4.6	50	53	24	83	4.4	250	0	190

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

YELLOWSTONE RIVER BASIN

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	TIME	DIS-CHARGE (CFS)	TEMPER-ATURE (DEG C)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
06207520 - SILVER TIP C BL AMOCO DAM NR BELFRY MT (LAT 45 00 42 LONG 108 55 20)												
NOV., 1971												
19...	1330	2.9	1.0	23	20	320	110	1100	110	507	0	2500
MAR., 1972												
16...	1200	2.7	7.5	18	20	280	100	1000	93	436	0	2300
MAY												
04...	1145	2.8	12.0	23	30	310	100	920	120	438	0	2200
JUNE												
27...	1430	2.2	21.5	23	10	300	99	990	110	452	0	2200
06207523 - SILVER TIP C TRB BL SCLR OIL FLD NR BELFRY MT (LAT 45 01 08 LONG 108 56 10)												
NOV., 1971												
19...	1400	.03	.5	35	20	170	72	1100	110	346	0	2000

MARIAS RIVER BASIN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
06091852 - MISSION LAKE NR. BLACKFOOT, MONT. (LAT 48 33 48 LONG 112 37 49)												
OCT., 1971												
29...	3.9	.3	.12	--	428	.58	--	220	83	1.8	692	7.7
MAY , 1972												
11...	6.1	.2	.04	.010	451	.61	--	240	95	1.7	720	8.2
JUNE												
27...	4.3	.0	.00	.010	457	.62	--	240	84	1.6	714	8.6
JULY												
26...	4.0	.2	.00	.010	416	.57	--	220	83	1.6	692	7.5
AUG.												
29...	3.7	.3	.05	.010	388	.53	--	200	80	1.5	613	8.3

MILK RIVER BASIN--Continued

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)
06174500 - MILK RIVER AT NASHUA, MONT. (LAT 48 07 52 LONG 106 21 50)												
APR., 1972												
20...	15	.3	.01	.000	536	.73	376	200	66	3.1	833	7.8
MAY												
15...	15	.3	.04	.000	550	.75	621	220	49	2.8	869	8.0
JUNE												
27...	8.4	.0	.03	.030	455	.62	1520	200	34	2.3	705	8.0
JULY												
19...	16	.3	.00	.020	595	.81	467	250	27	3.0	912	7.9
AUG.												
17...	14	.4	.09	.050	595	.81	652	230	52	3.1	913	7.8
SEP.												
21...	16	.4	.01	.020	498	.68	292	230	26	2.4	796	8.1

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

YELLOWSTONE RIVER BASIN--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	OIL AND GREASE (MG/L)
06207520 - SILVER TIP C BL AMOCO DAM NR BELFRY MT (LAT 45 00 42 LONG 108 55 20)												
NOV., 1971												
19...	590	2.1	.05	5010	6.81	39.2	1300	840	14	6380	7.5	2.0
MAR., 1972												
16...	470	1.8	.02	4480	6.09	32.7	1100	750	13	5880	7.3	7.0
MAY												
04...	540	2.2	.02	4440	6.04	33.6	1200	830	12	5960	7.5	--
JUNE												
27...	550	1.7	.00	4500	6.12	26.7	1200	790	13	5610	7.8	3.0
06207523 - SILVER TIP C TRB BL SCLR OIL FLD NR BELFRY MT (LAT 45 01 08 LONG 108 56 10)												
NOV., 1971												
19...	570	2.2	.44	4240	5.77	.34	720	440	18	5810	7.7	4.0

ANALYSES OF SAMPLES COLLECTED AT MISCELLANEOUS SITES

YELLOWSTONE RIVER BASIN

SUSPENDED SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1971 TO SEPTEMBER 1972

06202530 STILLWATER RIVER ABOVE WEST FORK AT NYE, MONT.

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT.					
07...	1550	--	193	3	1.6
NOV.					
18...	1535	1.0	93	2	.50
DEC.					
15...	1420	.5	99	2	.53
JAN.					
20...	1500	.0	86	2	.46
FEB.					
18...	1440	4.0	68	5	.92
MAR.					
23...	1515	6.5	86	2	.46
APR.					
19...	1150	6.5	58	1	.16
MAY					
23...	1220	6.5	901	8	19
JUNE					
05...	1400	7.5	2750	28	208
JULY					
12...	1235	10.5	1030	3	8.3
AUG.					
10...	1320	14.5	515	2	2.8
SEP.					
11...	1610	10.0	613	3	5.0

06202598 WEST FORK STILLWATER RIVER NEAR NYE, MONT.

DATE	TIME	TEMPERATURE (DEG C)	DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
OCT.					
07...	1500	8.0	108	3	.87
NOV.					
18...	1410	.0	57	3	.46
DEC.					
15...	1335	.5	52	7	.98
JAN.					
20...	1420	.0	42	5	.57
FEB.					
18...	1410	2.0	41	6	.66
MAR.					
23...	1445	5.5	47	6	.76
APR.					
19...	1220	5.0	46	5	.62
MAY					
23...	1450	6.5	299	12	8.4
JUNE					
05...	1120	7.0	683	17	31
JULY					
12...	1120	9.5	245	3	2.0
AUG.					
10...	1240	12.0	139	4	1.5
SEP.					
11...	1400	8.5	125	4	1.4

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